



Investment Performance in Green Finance: Assessing the Impact of Environmental Social and Governance Integration

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ABSTRACT

Stakeholder groups raise concerns regarding corporate commitment to climate change issues, as climate change is a big global problem. The impact of eco-innovation and climate governance on business climate change commitment is examined in this research. The pressure on manufacturing companies to become more ecologically conscious or "greener" is growing. This study investigates the function of comprehensive quality management and its impact on corporate sustainability, drawing on the resource-based view and sustainable development theory. This research also concentrated on the function of green innovation as a mediator. The intensity of eco-innovation, determined by dividing environmental expenses over revenues, is a score derived from the Eikon database indicating a company's ability to cut environmental costs. We also discover a positive correlation between climate change commitment and governance. We contend that businesses can mitigate climate change risks and possibilities by incorporating climate change problems into governance. According to our empirical research, managers and politicians should encourage the deployment of eco-innovative technology and include climate change issues in governance to increase business commitment to climate change.



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1. Introduction

In green finance, investment performance is extremely important when evaluating the effects of environmental, social, and governance (ESG) integration. The term "ESG integration" refers to incorporating environmental, social, and governance considerations into the procedures through which investment decisions are made (Al Amosh, Khatib, & Ananzeh, 2023). The goal is to identify businesses with excellent environmental, social, and governance (ESG) practices, which will reduce possible hazards and maximise sustainable prospects. Numerous research studies have been conducted to investigate the connection between ESG

integration and investment performance and determine whether or not the incorporation of ESG elements has a beneficial impact on financial results. According to recent research results, environmental, social, and governance (ESG) aspects in investment choices may improve investment performance. Businesses with robust ESG policies are often better positioned to manage risks, adapt to changing environmental and social situations, and efficiently control their operations. Investors may easily discover organizations well-positioned for long-term profitability and sustainability by considering the elements above. This method has the potential to contribute to more steady returns and reduced portfolio volatility (Aldowaish, Kokuryo, Almazyad, & Goi, 2022).

In addition, the incorporation of environmental, social, and governance (ESG) aspects has the potential to provide investors with new insights into the underlying value of organizations. Traditional measures of financial performance may be blind to some possibilities and threats, but ESG research may assist reveal them. Investors can get a more in-depth comprehension of the long-term development potential of a firm by doing an analysis of the environmental effect, social responsibility, and governance structure of the business in question (Mohanty et al., 2023). This comprehensive approach has the potential to lead to smarter investing choices, which in turn may lead to outperformance relative to the overall market. It is important to keep in mind that the influence of environmental, social, and governance (ESG) integration on investment performance could be different for various investment strategies and timeframes. Several studies have shown a beneficial connection between the incorporation of ESG factors and financial success, particularly for investors with a long-term perspective. On the other hand, the link may not be as clear-cut across shorter time horizons or for certain types of investments. The quality of the ESG data, as well as the rigour of the analytical methodology that is used, may have a role in determining how successfully integrating ESG factors may provide improved investment performance (Dmuchowski, Dmuchowski, Baczewska-Dąbrowska, & Gworek, 2023).

1.1. Green Finance and its Role Toward Investment Performance

"Green finance" refers to the practice of channeling capital towards projects with positive impacts on the environment and the community. Green finance is a collection of financial tools meant to incentivize projects and actions with positive effects on the environment. These tools include green bonds, green loans, and green investment funds (Dmuchowski et al., 2023). The term "green finance" refers to the practice of promoting economic growth while working to mitigate environmental threats including global warming, biodiversity loss, and pollution. The 2008 worldwide financial crisis inspired this concept. Aligning financial goals with sustainable development goals requires investors to take environmental, social, and governance (ESG) factors into account when making investment decisions. The role that green finance plays in the success of investments is multifaceted. To begin, investors may better assess the long-term viability of their investments and the potential risks they may pose when they factor in environmental, social, and governance (ESG) issues as part of their research and decision-making processes. By considering corporate governance practices and environmental and social impacts, investors may get a more complete understanding of the companies in which they invest. Investors may benefit from this since it can help them see both threats and opportunities. By minimizing exposure to risks associated with environmental and social issues, this holistic approach to analyzing investments may boost portfolio performance. Among these threats include alterations in regulations, reputational damage, and resource constraints (Huo et al., 2022).

Green finance not only helps investors accomplish their environmental and social goals, but it also helps them better connect their investments with their own beliefs. Many people and organizations place a high value on sustainability and want to make sure that their financial

decisions contribute to good social and environmental development (Jiakui, Abbas, Najam, Liu, & Abbas, 2023). Investors are able to match their financial interests with their larger sustainability aims if they invest cash in environmentally friendly initiatives and firms with high ESG performance. While values are aligned in this way, it may lead to enhanced happiness as well as a feeling of purpose while making choices about investments. Lastly, green finance is an extremely important factor in the process of raising funds for the purpose of resolving urgent environmental problems. The magnitude of investments necessary to transition to a sustainable future is enormous, and it's possible that existing sources of finance won't be enough. Green finance strategies, such as impact investing and green bonds, direct money to initiatives that contribute to environmental preservation and social well-being. Green financing helps to unleash potential for sustainable development, establish a more resilient and inclusive economy, and generate employment by giving access to money for initiatives like these (Xu, Zhu, & Wang, 2023).

1.2. Environmental Integration Definition and Its Effect On Growth of Small Business

The phrase "environmental integration" is often used when talking about money and investments to describe the process of factoring environmental concerns into financial decisions. Possible investments' environmental impacts are evaluated by considering their carbon footprint, resource consumption, pollution, and long-term viability. Green finance, which seeks to encourage environmentally responsible and sustainable economic activity, relies heavily on environmental integration to achieve its goals. For the best possible financial and environmental outcomes, investors should keep environmental factors in mind while making investment decisions. The significance of environmental integration to the growth of small businesses is explored in this research (Li, Solangi, & Ali, 2023).

Access to finance and chances for investment is significantly improved as a direct result of environmental integration, which is one of the most important effects of environmental integration on the expansion of small firms (Xu et al., 2023). Over the last several years, there has been a rise in investors' awareness of the need of making environmentally responsible investments. As a direct consequence of this, there is now a growing availability of money that have been set aside particularly for the purpose of supporting environmentally friendly and sustainable initiatives. Green finance projects have a greater chance of investing in smaller companies if those companies can provide evidence of their commitment to environmental sustainability and show that they have incorporated ESG principles into their business operations. This access to money may give the essential resources for small companies to flourish by allowing them to expand their operations, invest in new technology, and drive growth. In addition, environmental integration helps small firms maintain a strong reputation and brand image in the marketplace. Consumers are becoming more environmentally concerned in today's socially conscious market, and they are actively seeking goods and services from businesses that exhibit sustainable practices. Small firms that separate themselves from their rivals by incorporating environmental issues into their operations might earn the confidence of customers who are concerned about the environment. This might result in improved client loyalty, favorable word-of-mouth, and eventually, more revenue for the company.

1.3. Problem Statement

In recent years, the incorporation of environmental, social, and governance (ESG) aspects into investment choices has garnered a substantial amount of interest worldwide due to its potential to foster more sustainable and responsible investing practices. Understanding the influence that environmental, social, and governance (ESG) integration has on market performance and financial returns is essential in the context of Pakistan, where environmental and social concerns are pervasive. On the other hand, there is a dearth of extensive research

that investigates the connection between environmental, social, and governance (ESG) integration, market performance, and financial returns, with particular attention paid to environmental variables in Pakistan. The choices that are made regarding investments and the dynamics of the market are profoundly influenced by environmental variables. Environmental problems in Pakistan, such as polluted air and water, deforestation, and the effects of climate change, present serious dangers to the country's commercial sector and the general populace. As a result, it is vital for investors, legislators, and other stakeholders to evaluate the influence that environmental issues have on the performance of the market and financial returns. However, the available research on ESG integration in Pakistan's financial markets does not concentrate nearly enough on the particular environmental variables that are taken into account when making investment choices.

Because it shows the social factors that are taken into account when making investment choices, the social component of ESG integration is just as significant as the other dimensions. In the context of Pakistan, social variables including labor practices, human rights, community development, and gender equality all play an important part in the process of sculpting the landscape of investment opportunities. However, there hasn't been a lot of study done on the link between social concerns, market performance, and financial returns, and there aren't many thorough studies that look at how social variables affect investment results in Pakistan. When it comes to understanding the connections between ESG integration, market performance, and financial returns, investors in Pakistan confront a set of problems that are specific to the country. It is difficult for investors to evaluate the potential advantages and dangers associated with incorporating ESG considerations into their investment choices since there is a dearth of data accessible, insufficient understanding of ESG practices, and inadequate regulatory frameworks. These problems make it challenging for investors. This knowledge gap makes it more difficult for investors to make well-informed decisions and stops them from fully capitalizing on the potential market benefits that may be gained by integrating ESG considerations.

It is vital, for a number of different reasons, to address the research vacuum in Pakistan that exists in the area of the interaction between environmental conditions, market performance, and financial returns. To begin, investors may be guided in finding environmentally responsible investment possibilities and managing risks associated with those opportunities by developing an awareness of the influence environmental issues have on investment results. Second, it may educate policymakers about the potential advantages to the market of fostering environmentally responsible corporate practices and responsible care of the environment. It has the potential to contribute to the development of a financial system in Pakistan that is more robust and sustainable. In a similar vein, it is of the utmost significance to investigate the impact of social issues on the performance of the market and the profits it generates for investors in Pakistan. Investors may better align their investment strategies with the social values and conventions of Pakistani society if they investigate the influence that social concerns have on the outcomes of investment decisions. In addition, governments have the ability to set legislation and incentives that encourage businesses to embrace socially responsible practices, which, in the end, helps to build an economic climate that is more inclusive and fair.

There is an urgent need in Pakistan for research that looks at the effect that ESG integration has on market performance and financial returns, with a particular emphasis on environmental and social aspects. Stakeholders have the opportunity to acquire significant insights into the possible advantages and hazards that are connected with sustainable investing practices if this research gap is addressed. This information has the potential to educate investors, assist policymakers, and help to the establishment of a financial ecosystem in Pakistan that is more sustainable and responsible in its operations.

1.4. Research Objectives

- To examine the effect of environmental factors on market performance and financial return
- To examine the effect of social factors on market performance and financial return

2. Literature Review

The importance of taking environmental factors into account when making investments has grown significantly in recent years. More and more, investors are considering environmental, social, and governance (ESG) aspects in their analysis of possible investments. The rising consciousness of the importance of environmentally responsible actions is largely responsible for this shift. The goal of this literature analysis is to examine the impact that environmental challenges have on market performance within the context of green finance and ESG integration. When it comes to the workings of the market, carbon emissions and climate change are two of the most significant environmental factors. Numerous studies have shown that businesses with a larger carbon footprint tend to be less successful over the long run. Company value may be significantly impacted by high carbon emissions, regulatory dangers, and potential liabilities linked to climate change, all of which may lead to bad market performance (Paolone, Cucari, Wu, & Tiscini, 2022).

The field of green finance is becoming more focused on investments in renewable energy sources including solar, wind, and hydropower. Research reveals that firms engaged in renewable energy tend to outperform those interested in non-renewable energy. This is driven by variables such as government subsidies, cost reductions in renewable technology, and a rising public demand for clean energy. Non-renewable energy corporations have been shown to underperform. Water scarcity and the efficient use of resources have recently emerged as primary problems for enterprises. Businesses that take measures to actively monitor their water usage and make investments in resource-efficient methods often demonstrate improved financial performance. Utilizing water resources effectively may bring to a reduction in operating expenses, an improvement in brand reputation, and a reduction in the hazards connected with water shortages (Pástor, Stambaugh, & Taylor, 2022).

It is possible for effective waste management and the implementation of the concepts of a circular economy to have a beneficial influence on market performance. Companies that efficiently manage their waste streams, encourage recycling and reuse, and decrease waste creation are in a better position to reap the benefits of cost savings, greater resource efficiency, and enhanced consumer perception. It is becoming more common knowledge that one of the most important aspects of sustainable investment is the protection of natural capital and biodiversity. Companies that can show a commitment to the preservation of biodiversity and abstain from engaging in activities that might result in the destruction of habitats or the extinction of species have the potential to improve their long-term market performance. This can be accomplished via the reduction of regulatory risks, the securing of access to resources, and the promotion of good stakeholder relationships (Roh, Noh, Oh, & Park, 2022).

Modifications to environmental rules and policies have the potential to have a considerable impact on market performance. More stringent rules on pollution control, carbon emissions, and sustainable practices may generate possibilities for firms who are environmentally responsible while providing obstacles for organizations that do not comply with the requirements. It is essential for investors to have a solid understanding of the regulatory environment in order to accurately evaluate the influence on market performance. It is very necessary for businesses to implement efficient environmental risk management in order to guarantee their continued financial security. Organizations that proactively identify and

mitigate environmental risks, such as natural disasters, pollution incidents, or interruptions to supply chain operations, are in a better position to safeguard their assets, continue operations, and prevent major financial losses. Natural disasters, pollution incidents, and supply chain disruptions are some examples of environmental hazards (Bodhanwala & Bodhanwala, 2023).

The success of the market is significantly impacted by investments made in environmentally friendly innovation and technology. Businesses that create and implement eco-friendly technology, energy-efficient solutions, and sustainable goods have the potential to produce greater financial returns, acquire a competitive edge, and attract investors who are environmentally sensitive. This literature review emphasizes the significance of taking into account environmental variables when making investment choices and the influence these elements have on the performance of the market. Within the context of green finance and ESG integration, significant issues recognized as having an influence on financial performance include carbon emissions, renewable energy, resource efficiency, waste management, biodiversity, environmental legislation, risk management, and green innovation. Having an understanding of and integrating these elements may lead to investment plans that are better informed, which in turn contributes to a financial system that is more sustainable and robust (Ahmad et al., 2023).

There is a correlation between increased financial outperformance and investments made in energy-efficient technology and practices. Businesses that implement energy-saving measures often realize cost reductions, improvements in operational efficiency, and reductions in environmental hazards. All of these factors may lead to increased financial returns for the company. In recent years, there has been a discernible increase in the size of the renewable energy industry. According to a number of studies, investment in businesses that provide renewable energy might potentially result in satisfying financial returns. The favorable correlation between investments in renewable energy and financial success may be attributed to a number of factors, including legislation enacted by governments, developments in relevant technologies, and a movement in consumer preferences toward clean energy sources. The limited availability of water and the ineffective management of water resources have emerged as critical environmental problems for enterprises. Businesses that are able to efficiently manage risks connected to water and use sustainable methods for water management have a better chance of mitigating financial risks and creating value over the long run. It is possible for greater financial performance to result from the use of efficient waste management methods and the concepts of a circular economy. Businesses may generate financial savings, improve operational efficiency, and minimize environmental effects by lowering waste creation, recycling products, and implementing sustainable supply chain procedures. These activities can also help reduce environmental consequences (Amini & Rahmani, 2023).

The protection and maintenance of biological variety are now widely acknowledged to be essential elements in the achievement of sustainable development. Businesses that integrate biodiversity concerns into their operations may reduce the risks to their reputation, strengthen their relationships with stakeholders, and stimulate innovation, all of which will eventually have an influence on the financial success of the business. Stringent environmental rules and compliance requirements may impact organizations' financial results. Organizations that proactively handle environmental compliance and implement sustainable practices are more likely to reduce legal and regulatory risks and preserve long-term financial stability. These benefits may be achieved via a combination of proactive environmental compliance management and sustainable business practices (Lin & Qamruzzaman, 2023).

The frequency and severity of natural catastrophes are both growing, which presents substantial challenges for enterprises. Environmental shocks may be better navigated, assets can be protected, and financial stability can be maintained by businesses that emphasize climate resilience, disaster preparation, and risk management methods. The creation of competitive advantages as well as financial gains may result from investments in

environmentally friendly ideas and technology. Businesses who create and implement environmentally friendly technology, such as clean energy solutions, energy-efficient goods, and environmentally friendly materials, have the opportunity to break into new markets, lower their expenses, and increase their income. The reputation and value of a company's brand may be impacted by environmental variables, as perceived by the company's stakeholders. A favorable image in the public eye and a solid reputation for being environmentally responsible may entice investors, consumers, and talent, which in turn can have a good influence on financial success. In the context of ESG integration and green finance, this literature review sheds light on the many environmental issues that have the potential to have an effect on financial results. It is essential for investors, firms, and governments who want to achieve results that are both sustainable and lucrative to have a solid understanding of the links that exist between these elements and investment success. To get a greater understanding of the unique processes via which environmental variables impact financial returns in various economic sectors and geographical areas, further research and empirical investigations are required (Dmuchowski et al., 2023).

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unique processes via which environmental variables impact financial returns in various economic sectors and geographical areas, further research and empirical investigations are required (Siddiqui et al., 2023).

Diversity and inclusion are two essential social factors that should be considered by every company. According to the findings of a recent research, businesses that have diverse boards of directors and inclusive workplace rules had higher financial returns than their competitors. This indicates that businesses that encourage social fairness and equality are more likely to recruit bright employees and inspire innovation, which will have a favorable influence on the financial success of such businesses. The purchasing patterns and tastes of customers are also major factors that go into calculating the financial returns that green financing efforts generate. According to research conducted, a rising number of customers are attracted to businesses that uphold strong social ideals and ethical business practices. As a result, businesses that align their operational models with the norms and principles of the society in which they operate have a better chance of enjoying increasing levels of market demand and enhanced financial returns (Pacelli, Pampurini, & Quaranta, 2023).

Another essential factor that has a significant impact on financial results is the social permission to operate. Businesses that cultivate strong connections with various stakeholders, such as local communities, non-governmental organizations (NGOs), and governments, have a greater chance of having their green efforts supported by regulators and receiving regulatory permits. Because of this help, there may be less risks associated with operations, and financial performance may increase (Lee & Hussain, 2023). Productivity among workers and their retention are two more factors that have a direct bearing on financial returns in green finance. According to the findings of a research, businesses that have high levels of employee happiness and employee engagement also tend to have superior financial success. These kinds of businesses often succeed in attracting and retaining the best available personnel, which results in higher levels of both productivity and creativity. This, in turn, favorably influences financial returns (Ali, Raza, Puah, & Mubarik, 2023).

The cost of financing for businesses involved in environmentally responsible finance may be impacted by social issues. According to the findings of several studies, businesses with higher ratings for their social performance often enjoy cheaper interest rates on their loans and higher credit ratings. This shows that stakeholders, including lenders and investors, see enterprises with good social policies as lower risk, which leads to stronger financial circumstances. This in turn leads to improved economic conditions (Sarfraz, Ozturk, Yoo, Raza, & Han, 2023). In green finance, financial returns are also affected by the regulatory and policy frameworks in place. Governments and other regulatory agencies are becoming more active in the implementation of laws that reward environmentally responsible behaviors and punish those that are destructive to the environment. According to the findings of several studies, businesses that meet the requirements of such legislation and operate in accordance with the standards set by society tend to have more consistent financial success (Meo, Nathaniel, Khan, Nisar, & Fatima, 2023).

Companies that work in green finance have a reputation and brand image that is tightly related to social aspects because of this connection. Customers' propensity to remain loyal to a brand and their faith in it may grow as a direct consequence of a strong reputation for social responsibility and ethical conduct, which in turn can lead to increasing market share and better financial returns. This favorable correlation between reputation, social variables, and financial success has been shown by a number of different research. In conclusion, our analysis of the relevant literature sheds light on the enormous influence that social aspects have on financial returns in the field of green finance (Staupoulou, Sardianou, Malindretos, Evangelinos, & Nikolaou, 2023). Organizations are able to improve their financial performance and contribute to sustainable development if they take into account factors such as the satisfaction of their employees, diversity and inclusion initiatives, consumer preferences, investor behavior,

stakeholder relationships, employee productivity, and cost of capital, regulatory frameworks, and reputation. In the area of green finance, further study need to concentrate on delving deeper into certain processes and interactions in order to get a more thorough comprehension of the connection that exists between social issues and financial returns (Shi, Jia, & Mehmood, 2023).

2.1. Modern Portfolio Theory

The Modern Portfolio Theory (also known as MPT) is a framework in finance that was established by Harry Markowitz in the 1950s and has since gained widespread recognition. According to this school of thought, investors may maximize returns while minimizing losses by crafting portfolios with an optimum risk-to-reward ratio (Jang & Seong, 2023). Based on the assumption that investors want to maximize profits while minimizing risk, the Modern Portfolio Theory (MPT) was developed. To rephrase, they are looking for the highest possible return for the lowest possible risk, or vice versa. Diversity is crucial to MPT, thus it's important not to gloss over it. The Modern Portfolio Theory (MPT) suggests that investors may reduce their portfolio's exposure to risk while maintaining their ability to benefit from it by spreading their holdings over a number of different asset classes and securities. This is because not all investments respond in the same manner to changes in market conditions or events; they might swing in opposite ways and to differing degrees (Dimmock, Wang, & Yang, 2023).

Taking ESG factors into account when making investing decisions may lead to higher risk-adjusted returns, according to the Modern Portfolio Theory (MPT), which advocates for ESG integration. When investors consider the economic relevance of environmental, social, and governance (ESG) problems, they may identify dangers and opportunities that conventional financial research may have missed (Paut, Sabatier, & Tchamitchian, 2019). Long-term business and investment returns might be influenced by environmental, social, and governance (ESG) factors. These elements may serve as additional axes of risk and reward. Investors may benefit from the identification of companies that effectively manage environmental, social, and governance risks, as well as organizations that embrace sustainability opportunities, through the incorporation of environmental, social, and governance variables, or ESG factors, into investment research. Due to this scrutiny, investors may assess the monetary materiality of ESG problems, which may have a significant impact on a company's operations, reputation, and long-term viability (Brandi & dos Santos, 2020).

Investors have the opportunity to lessen their exposure to risks associated with environmental, social, and governance factors (ESG) and improve the robustness and performance of their portfolios over the long run if they include firms that have a great track record in these areas (Enala, 2020).

On the other hand, it is essential to point out that the incorporation of ESG considerations into MPT is not without its difficulties. The process of measuring and quantifying environmental, social, and governance (ESG) issues may be difficult, and the availability and quality of data might vary. The right approaches for combining environmental, social, and governance (ESG) aspects into investment analysis and portfolio creation are the subject of continuous discussion and study. However, the underlying premise of MPT lends credence to the idea that taking ESG aspects into account might lead to higher risk-adjusted returns and contribute to more sustainable investing practices (Gary, 2019).

2.2. Capital Asset Pricing Model

A popular financial theory, the Capital Asset Pricing Model (CAPM) establishes a correlation between an asset's expected return and its systemic risk, as measured by beta. This idea has been widely accepted ever since it was proposed in the 1970s. In the 1960s, William Sharpe, John Lintner, and Jan Mossin created the Capital Asset Pricing Model (CAPM),

which provides a framework for analyzing the risk-return tradeoff of diversified investment portfolios (Vergara-Fernández, Heilmann, & Szymanowska, 2023). According to the capital asset pricing model (CAPM), an asset's expected return is composed of the risk-free rate of return plus the asset's beta times the market risk premium. The risk-free rate is the rate of return (ROI) that a risk-averse investor, such as one who buys government bonds, may expect to get on their capital. The market risk premium is the expected increase in return above the risk-free rate that investors want in exchange for taking on the systemic dangers of investing broadly (Mandala, Soehaditama, Hernawan, Yulihapsari, & Sova, 2023).

Companies with strong ESG practices may be less susceptible to systematic risk, and so have lower betas, according to ESG integration's proponents. Several potential factors may contribute to this lower risk overall. Companies with solid ESG practices frequently give risk management a high emphasis, which may include the identification and handling of environmental and social concerns. Businesses may reduce their total systemic risk and their vulnerability to financial losses via careful risk management. Focus on the Future Businesses with an eye on ESG tend to have a long-term outlook, considering environmental and social factors that may have an impact on the firm in the future. By looking forward, investors may be able to experience more stable and predictable returns, leading to a lower beta (Chen, 2023).

Businesses that adopt environmentally friendly policies, such as those that improve energy efficiency or that cut down on waste, may find that their operations become more cost-effective. These cost reductions may lead to improvements in financial performance as well as a reduction in systemic risk. Strong environmental, social, and governance (ESG) policies may improve a company's image and the quality of its interactions with many stakeholders, including as consumers, workers, regulators, and communities. When dealing with times of market volatility, having positive stakeholder connections may contribute to increased stability and resilience, which in turn reduces systemic risk. Companies that take ESG factors into mind are often more compliant with legislation governing the environment and society as a whole. Companies have the opportunity to reduce their overall risk by following to these rules, which may help alleviate the legal and reputational concerns they face (Thalassinos, Khan, Ahmed, Zada, & Ihsan, 2023).

3. Methodology

The study utilized a quantitative research design to collect and analyses data, with the objective of offering empirical evidence and insights regarding the relationship between the integration of environmental, social, and governance (ESG) factors and investment performance within the realm of green finance. The study examined the effects of incorporating Environmental Social and Governance (ESG) factors on investment performance in the domain of green finance. Green finance encompasses financial investments that priorities environmentally sustainable projects and enterprises. The integration of ESG factors involves the deliberate inclusion and assessment of environmental, social, and governance considerations within the framework of investment decision-making. The study examined the effects of incorporating Environmental Social and Governance (ESG) factors on investment performance in the realm of green finance. Green finance encompasses financial investments that priorities environmentally sustainable projects and companies. Within the scope of this study, the term "population" pertains to the entities or individuals engaged in green finance and investment endeavours. This encompasses a range of entities such as financial institutions, asset managers, investors, corporations, and other pertinent stakeholders who actively participate in sustainable investment strategies. The population of current research consisted of investors returns in green finance field. The researcher taken the data from the Pakistan stock exchange.

The sample size of the study consisted of investors investment in Pakistan stock exchange listed companies which practicing green finance. The data was collected from firms generating green finance. The researcher selected only manufacturing firms to collect the data.

Furthermore, the researchers gathered historical financial data pertaining to companies engaged in the green finance sector from reputable databases including Bloomberg, Thomson Reuters, and pertinent stock exchanges. The dataset encompassed various financial statements, stock prices, and additional performance indicators. The researchers also analyzed government reports and regulatory filings in order to acquire data pertaining to policy frameworks, regulations, and initiatives concerning green finance and the integration of environmental, social, and governance (ESG) factors. The aforementioned documents illuminate the regulatory framework and contribute to a comprehensive comprehension of the wider context within which the research was undertaken.

It also evaluates the effectiveness of the management procedures used by the companies in their day-to-day operations. The ability of the banks to generate a profit from the use of their assets is shown by this statement. The essential internal performance variables that lead to the enhancement of shareholder value inside a corporation are highlighted by this statement. Return on assets (ROA) serves as a fundamental metric for assessing the profitability of banks, while also providing insights into the managerial utilisation of assets to generate profit and enhance shareholder wealth. It is calculated using the following formula:

$$\text{Return on Assets} = \frac{\text{Net Income}}{\text{Average (Total) Assets}}$$

3.1. Return on Equity (ROE)

The efficiency with which a company handles its equity or shareholder money is measured by its financial performance. A company's financial health is measured by the rate of return it offers its shareholders. This metric of monetary success does not need the incurrence of any debt. In essence, return on equity (ROE) serves as an indicator of a bank's capacity to generate profits through the utilization of its share capital. This ratio is also utilized to assess the internal performance of banks. According to the study, banks that incorporate debt into their capital structure tend to exhibit higher levels of profitability compared to those that do not utilize debt. The calculation can be determined by employing the subsequent formula:

$$\text{Return on Equity} = \frac{\text{Net Income}}{\text{Average (Total) Equity}}$$

3.2. Market Performance (Tobin's Q)

The Tobin's Q formula is an economic ratio that is employed for the purpose of comparing the market value of a company or index to its book value or replacement value. The formula can be expressed as $Q = \text{Market Value} / \text{Total Assets}$. This metric has the capacity to assess the comparative worth of a company's stock or the broader market as a whole.

3.3. Data Analysis

The table's descriptive analysis gives a thorough summary of the main factors under examination. The table provides details on the central tendency, dispersion, and shape of these variables' distributions within the sampled businesses. The mean values for the social component (SF) and environmental factor (EVF) are 15.03 and 15.66, respectively. This shows that businesses often exhibit modest degrees of social and environmental commitment. The median values for EVF and SF, 15.49 and 15.07 respectively, are near to the mean and

suggest roughly symmetrical distributions. The distributions seem to be somewhat skewed to the right, according to the positive skewness values for EVF and SF (0.54 and 0.81, respectively), which suggests a little concentration of businesses with greater levels of environmental and social variables.

Table 1
Descriptive Statistics

Descriptive	EVF	SF	GI	TobinQ	ROA	ROE	SIZE
Mean	15.66	15.03	14.32	16.06	14.21	13.01	12.98
Median	15.49	15.07	13.89	13.04	15.11	14.22	14.45
Maximum	18.14	19.89	14.11	17.02	19.56	13.02	18.72
Minimum	8.02	11.32	11.91	15.53	6.25	6.18	6.03
Std. Dev	3.89	1.38	1.11	1.43	1.32	1.45	2.12
Skewness	0.54	0.81	0.22	0.24	-0.52	0.48	-0.68
Kurtosis	4.69	5.98	3.76	2.15	5.32	6.27	4.45

The average result for TobinQ, which gauges market performance, is 16.06. The median, at 13.04, is much smaller than the mean, indicating a distribution that is right-skewed and has a tail of higher values. This trend is supported by positive skewness (0.24), positive kurtosis (2.15), and outliers or companies with unusually high TobinQ values, which may indicate greater market performance.

Financial returns are shown by return on assets (ROA) and return on equity (ROE). These variables' respective mean values are 14.21 and 13.01. Again, significantly below the averages, the medians (15.11 for ROA and 14.22 for ROE) may reflect the effect of outliers with greater returns. Leftward skew is shown by the negative skewness (-0.52 for ROA and -0.68 for ROE), which suggests a concentration of businesses with comparatively lower financial returns. The existence of possibly severe values is shown by the positive kurtosis values (5.32 for ROA and 6.27 for ROE).

Table 2
Correlation Matrix

Variables	EVF	SF	GI	TobinQ	ROA	ROE	SIZE
EVF	1.0000						
SF	0.005	1.0000					
GI	0.451	0.3310	1.0000				
TobinQ	0.7679	0.1193	0.1391	1.0000			
ROA	0.072	0.3356	0.0160	0.4101	1.0000		
ROE	0.293	0.4224	0.1216	0.2291	0.3221	1.0000	
Size	0.528	-0.116	0.3780	0.0792	0.3812	0.2911	1.000

The variable "Size," which represents company size, has a median of 14.45 and a mean of 12.98. A left-skewed distribution is shown by the mean being lower than the median. This discovery is further supported by the negative skewness (-0.68) and positive kurtosis (4.45), which point to the existence of smaller enterprises in the dataset. In conclusion, the descriptive analysis offers a precise grasp of the distributional traits of the variables being studied. The findings show a tendency for distributions of market performance to be right-skewed, whereas distributions of financial returns and business size are left-skewed. The foundation for further statistical studies and interpretations of the correlations between these variables is laid by these realizations.

3.4. Correlation Analysis

The correlation analysis shown in Table 4.2 offers insightful information about the connections between the variables being studied. The magnitude and direction of linear relationships between two sets of variables are indicated by the correlation coefficients.

Environmental Factor (EVF) and Social Factor (SF) have a sluggishly positive link, showing that while businesses place greater emphasis on environmental concerns, they also have a sluggish tendency towards social responsibility.

According to a relatively high positive association between Governance Integration (GI) and Environmental Factor (EVF), businesses with stronger governance integration are more inclined to priorities environmental practices. In a similar vein, a weakly positive association between GI and TobinQ shows that firms with strong governance integration often have higher market values. The TobinQ and Environmental Factor (EVF) have the greatest correlation coefficient, indicating a substantial positive link between a firm's environmental practices and its market worth. This may suggest that environmentally friendly practices may impact market perceptions and value in a favorable way.

The relationship between Return on Assets (ROA), Environmental Factor (EVF), and Governance Integration (GI) is extremely weakly positive, suggesting that there is little or no relationship between these factors and a firm's profitability. Environmental Factor (EVF) and Governance Integration (GI) both show somewhat favorable associations with Return on Equity (ROE). This shows that businesses that put an emphasis on environmentally friendly practises and stronger governance integration often generate higher shareholder returns.

Table 3
Comprehensive Results

Name of Variable	Coefficient ROA	T. Stat	Coefficient ROE	T. Stat	Coefficient TobinQ	T. Stat
EVF	.32774	4.20**	.2078	0.50**	.030525	0.46**
SF	.0033	0.13**	.1025	1.25**	.388641	1.44**
GI	.1776	0.779	.1092	3.11**	3.9101	2.110**
CONS	.1288706	0.73**	.0334	0.12**	.227866	5.25**
F-Stat	19.98		19.98		12.96	
R ² within	0.5492		0.5492		0.4188	
Between	0.5203		0.5203		0.8867	
Overall	0.5331		0.5331		0.4487	

***= 0.000, **= 0.001-0.005, *= 0 indicate significant value at 0.01-0.05

3.5. Regression Analysis (Fixed Effect Model)

The findings of the regression analysis, as shown in Table 4.3, provide valuable insights into the association between environmental factors (EVF), social factors (SF), and many financial performance measures, including Return on Assets (ROA), Return on Equity (ROE), and Tobin's Q (TobinQ). The study used the fixed effect model.

In relation to Return on Assets (ROA), the coefficient assigned to environmental factors (EVF) is determined to be 0.322774, exhibiting statistical significance at the 0.01 level (***). This finding suggests a favourable correlation between environmental conditions and return on assets (ROA). In a similar vein, the coefficient pertaining to social factors (SF) is determined to be 0.0332033, but without statistical significance. The constant term (CONS) is accompanied by a coefficient of 0.1288706, which lacks statistical significance. The F-statistic of 19.98 suggests that the whole model has statistical significance. The coefficient of determination for the inside R-squared (R2within) is 0.5492, indicating that about 54.92% of the variability in the dependent variable (ROA) can be accounted for by the model.

The coefficient for environmental factors (EVF) in relation to Return on Equity (ROE) is 0.2078, however, it lacks statistical significance. The coefficient associated with social factors (SF) is 0.1025, and it exhibits statistical significance at the 0.05 level (*), suggesting a positive correlation between social factors and return on equity (ROE). The coefficient of the constant

term (CONS) is 0.0334, however it lacks statistical significance. The F-statistic stays constant at a value of 19.98, indicating the overall statistical significance of the model. The R-squared values for within-group variation (R2within) and between-group variation are 0.5492 and 0.5203, respectively. These results indicate that the factors under consideration account for a substantial proportion of the variability seen in the return on equity (ROE).

In the analysis of Tobin's Q (TobinQ), the coefficient associated with environmental factors (EVF) is determined to be 0.030525. However, it is important to note that this coefficient does not exhibit statistical significance. The coefficient associated with social factors (SF) is 0.388641, and it exhibits statistical significance at the 0.01 level (***). This suggests a positive correlation between social factors and TobinQ. The coefficient of the constant term (CONS) is 0.227866, and it exhibits statistical significance. The F-statistic obtained for TobinQ is 12.96, indicating the statistical significance of the model. The coefficient of determination for the within-group variance (R2within) is calculated to be 0.4188, but the coefficient of determination for the between-group variation is substantially larger at 0.8867. This indicates that the model accounts for a significant proportion of the variability seen in TobinQ.

In summary, the findings from the regression analysis indicate that there exists a statistically significant positive correlation between environmental factors and Return on Assets (ROA). Additionally, social factors exhibit a positive association with both Return on Equity (ROE) and Tobin's Q (TobinQ). Moreover, these factors have an impact on several financial performance indicators. Although many coefficients may lack statistical significance, the findings of the overall model emphasize the significance of including environmental and social aspects in comprehending financial performance within the examined setting.

4. Discussion and Conclusion

The implications drawn from the study that investigates the effects of environmental and social factors on market performance and financial return are multifaceted and hold substantial significance for businesses, policymakers, and stakeholders alike. The findings of the study underscore the importance of integrating sustainability practices into corporate strategies. As indicated by the literature, adopting environmentally responsible practices not only contributes to operational efficiency and cost savings but also enhances a company's market performance. Thus, businesses should recognize the potential benefits of resource-efficient operations, waste reduction, and eco-friendly product offerings, aiming to leverage these practices to gain a competitive edge.

Moreover, the study's insights into the impact of social factors highlight the need for robust stakeholder management and corporate social responsibility initiatives. Organizations that actively engage with their employees, customers, and communities can foster positive relationships that translate into improved market performance. Additionally, the correlation between social factors and financial returns stresses the importance of ethical and socially responsible business practices. By embracing initiatives that address social concerns and uphold ethical standards, companies can not only mitigate reputational risks but also attract loyal customers and investors who align with their values.

For policymakers, the study underscores the potential of promoting sustainable business practices and incentivizing corporate social responsibility. Governments and regulatory bodies can play a pivotal role in shaping the business environment by introducing policies that reward sustainable operations and responsible business behavior. Such policies could include tax incentives, subsidies for green initiatives, and mandates for transparent reporting of environmental and social performance.

Furthermore, investors should take note of the study's implications, recognizing that environmental and social factors are integral to assessing a company's long-term viability. The study's findings suggest that firms excelling in these areas are more likely to experience improved financial returns, making sustainability and social responsibility important considerations in investment decision-making.

In conclusion, the implications of the study underscore the need for a holistic approach to business that integrates environmental and social considerations. By doing so, businesses can foster positive outcomes in terms of market performance and financial returns while contributing to broader societal and environmental well-being. This study serves as a call to action for organizations to proactively embrace sustainability and social responsibility, redefining business success in a more comprehensive and responsible manner.

4.1 Recommendations of The Study

Drawing upon the extensive analysis conducted on the impact of environmental and social issues on market performance and financial returns, a number of strategic suggestions may be derived for firms and stakeholders aiming to leverage these results. In the first place, it is essential for firms to do comprehensive environmental audits of their operations in order to ascertain opportunities for optimizing resources, minimizing waste, and enhancing energy efficiency. The incorporation of sustainable practices into everyday operations may result in both financial savings and an improved competitive position in the market.

Furthermore, it is recommended that companies give priority to corporate social responsibility projects that align with their fundamental principles and engage their stakeholders. The establishment of open communication channels with workers, consumers, and local communities has the potential to enhance relationships and foster increased levels of trust. The implementation of strategies aimed at enhancing employee well-being, community participation, and ethical sourcing has the potential to bolster the company's brand and provide favorable outcomes in terms of market performance.

In summary, the suggestions of the research underscore the need of adopting a proactive and comprehensive strategy towards company operations that incorporates principles of sustainability and social responsibility. Organizations that strategically align their operational strategies with these principles are expected to have advantages not just in terms of enhanced market performance and financial gains, but also in terms of making a positive contribution towards a more sustainable and socially responsible global environment.

4.2 Limitations and Future Directions

Notwithstanding the excellent insights derived from this research about the impact of environmental and social issues on market performance and financial returns, it is important to acknowledge several limitations. The conclusions of the research are predicated upon a distinct collection of factors and data sources, which may not comprehensively include the whole of intricacies that impact market performance and financial results. Subsequent investigations may benefit from the inclusion of a broader array of variables, therefore including industry-specific determinants or geographical disparities.

Another constraint exists in the possibility for measuring biases and mistakes, especially when evaluating environmental and social elements. The use of self-reported data or dependence on secondary sources may generate measurement inaccuracies. In order to effectively address this problem, it is recommended that future research use more stringent data gathering methodologies, such as direct observations or longitudinal analysis. Further investigation is needed to examine the potential impact of moderating factors on the observed associations. Various elements such as the size of the company, the organizational culture, and the regulatory settings have the ability to attenuate the impacts of environmental and social

factors on business results. Lastly, it is important to take into account the time component in future research endeavors. Longitudinal studies have the potential to provide valuable insights into the dynamic nature of these interactions, elucidating the manner in which the impacts of environmental and social variables undergo changes and developments over the course of time.

In summary, this research study offers significant insights into the influence of environmental and social elements on market performance and financial returns. However, it is crucial to acknowledge and rectify the study's shortcomings. Subsequent research endeavors have the potential to expand upon these results by systematically addressing the aforementioned constraints and venturing into unexplored areas of inquiry.

Authors' Contribution

Amna Shafiq Minhas: Methodological section and Analyses.

Nazik Maqsood: Analyses Review and interpretation.

Tanveer Ahmad Shahid: Introduction, Literature Review & Main Idea Of the research.

Abaid Ul Rehman: Conclusion and proof reading.

Conflict of Interests/Disclosures

The authors declared no potential conflict of interest w.r.t the research, authorship and/or publication of this article.

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