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## The Impact of ESG-Based Sustainable Finance Measuring on Individual Investors' Investment Decisions on the Pakistan Stock Exchange (PSX)

Mazhar Farid Chisti<sup>1\*</sup>

<sup>1</sup> PhD Scholar, Minhaj University, Pakistan

Corresponding Author: Mazhar Farid Chisti Email: Mazhar.farid@gmail.com

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### Abstract

This research aims to assess the impact of global sustainable financing, including ESG criteria, on PSX investors. It explores the elements of environmental, social, and governance (ESG) factors and their significance. Specifically, this paper focuses on how these elements influence investors' perceptions of a firm's viability, risk, and potential for future development. Additionally, it evaluates the importance of green innovation in investment decisions, emphasizing that firms must enhance their green measures and solutions in response to the changing global economy. Recognizing the significance of ESG factors, green innovation serves as a tool for independent investors seeking greener investment opportunities and ethical revenue streams. The results of this study highlight the interconnected dynamics between sustainable finance, ESG factors, and green innovation, supporting the need for investment strategies that benefit individual investors while contributing to a more sustainable and prosperous economy in the long term.

**Keywords:** ESG, Sustainable Finance, PSX

### 1. Introduction

The global financial crisis of recent decades, compounded by the COVID-19 pandemic, has exposed vulnerabilities in the corporate sector, particularly highlighting the world's interconnected nature. Many firms have faced accusations of unethical behavior, overstated environmental achievements, and poor stakeholder management. These disruptions have prompted a growing awareness among stakeholders regarding the importance of environmental, social, and governance (ESG) factors. This increased focus on ESG has become essential for evaluating corporate responsibility and sustainability, urging companies to adopt more transparent and accountable

practices. Researchers argued that sustainable finance is crucial for promoting ESG accountability and enhancing long-term corporate resilience (Atz et al., 2023; Sandberg et al., 2023). However, there is no universally accepted definition of sustainable finance (Chiappori et al., 2023), as it encompasses multiple approaches aimed at integrating ESG factors into investment and financial practices. The importance of sustainable finance is highlighted by its role in fostering sound financial conditions for companies, particularly from the perspective of economic growth and development (D'Orazi, 2023; Chishti et al., 2024).

Integrating ESG factors is essential for firms' sustainable growth strategies (Rahman et al., 2023). This integration considers various contingencies and significantly influences long-term planning. When businesses engage in ESG-related decision-making, they assess aspects beyond immediate financial concerns. These include operational profiles related to environmental impacts such as carbon emissions and resource usage, social factors like fair trade practices and product safety, and governance elements like stakeholder protection and board independence (Tan et al., 2023).

The explanation for this phenomenon is that an organization's ratings on ESG factors are commonly seen as a key tool for enhancing its value. Combined with corporate social responsibility (CSR), the proposition made by Park et al. (2023) supports the idea that a positive relationship with ESG factors can improve a company's value. In addition, findings from Zaid and Issa (2023) reveal that mainstreaming ESG performance information into an organization's managerial processes creates corporate worth. Gao et al. (2023) explored how many firms have begun undertaking activities to strengthen their positions regarding ESG matters. They have organized management roadshows with investors to showcase their ESG initiatives and have sought to incorporate ESG information into their annual reports for public access. However, about half of the firms consider their ESG ratings before sharing this information with specific stakeholders. It is increasingly appropriate for companies to communicate their ESG information to stakeholders beyond just shareholders. This shift can be attributed to the fact that high-sustainability enterprises typically have a better capacity to establish long-term investment sources due to their strong focus on long-term prospects (Ren et al., 2023; Nazir et al., 2024).

The influence of sustainable finance and the careful consideration of ESG factors continue to dominate investment decisions. Research indicates that an increasing number of investors are seeking sustainable and responsible investment options that incorporate ESG elements (D'Souza

et al., 2021). Studies have shown a significant correlation between the implementation of ESG policies and financial returns, suggesting that firms focused on positive ESG ratings tend to perform better than those that do not (Khan et al., 2022; Tufano et al., 2022).

The availability of ESG data and reporting frameworks has made it easier for investors to make informed choices that align with their values and promote positive societal and environmental outcomes (Koh et al., 2021). As sustainable finance gains traction and the importance of ESG factors becomes more recognized, many investors are realizing the potential for achieving both financial returns and societal value through their investment choices.

In the Pakistan Stock Exchange (PSX), sustainable finance and ESG factors are emerging concepts, gaining traction as essential investment criteria. It is encouraging to see investors increasingly recognizing the need to integrate ESG standards into their portfolios (Khan, 2020). By considering environmental efficiency, social responsibility, and corporate governance, investors can support companies with sustainable development strategies, thereby mitigating future risks. This shift towards sustainable investing contributes to a better investment environment (Ahmed et al., 2020).

With the expansion of ESG metrics and reporting frameworks, investors now have access to rich information that aids in making informed investment decisions in the PSX (Ullah et al., 2021). The relationship between sustainable finance and individual investors' decisions in the PSX is crucial, as is the role of organizations in promoting social benefits and positive environmental impacts (Koh et al., 2021).

While sustainable finance and ESG factors remain relatively novel in the PSX, there is a growing awareness among investors of the importance of integrating portfolios with companies that demonstrate strong ESG performance (Khan, 2020). By assessing the ESG scores of companies, investors can identify sustainable businesses with lower long-term risks (Rashid et al., 2021). The transition from traditional to sustainable investing is essential for fostering responsible investment practices and developing a moral investment code (Ahmed et al., 2020). As more companies adopt ESG practices and refined methodologies for evaluation emerge, investors can access integrated details that significantly enhance their decision-making processes within the PSX (Ullah et al., 2021). This study proposes following questions.

- Does sustainable finance that is quantified using ESG impact the choice of investment decision regarding PSX by individual investors?
- Does the green innovation moderate between sustainable finance assessed by ESG impact on the investment decisions of individual investors in PSX?

In recent years, the global focus on sustainable finance and the integration of environmental, social, and governance (ESG) factors has increased significantly. However, there remains a gap in the literature regarding how sustainable finance and ESG frameworks influence individual investors' decisions in the context of the Pakistan Stock Exchange (PSX). This lack of awareness hampers individual investors' ability to make environmentally responsible investments aligned with their preferences and needs without incurring substantial costs.

A major challenge is the absence of clear norms, standards, and ESG metrics for evaluating the performance of PSX-listed companies. Additionally, it's essential to assess PSX investors' knowledge and understanding of sustainable finance and ESG factors. Gaining insights into the issues and limitations individual investors face when implementing sustainable finance is crucial for developing strategies to promote sustainable investment in the PSX. By doing so, we can empower investors to take advantage of opportunities in sustainable finance and integrate ESG factors into their portfolios, benefiting both investors and the overall sustainability of the PSX.

The roles of sustainable finance and ESG can be highlighted through improved risk-return dynamics. Integrating conventional finance with sustainable finance and ESG factors can help investors mitigate risks while potentially achieving higher returns. By evaluating firms' ESG factors, individual investors can identify companies with sustainable business strategies, increasing their chances of securing substantial and lasting returns.

Moreover, sustainable finance facilitates value alignment and impact investing, allowing individuals to invest in ways that resonate with their values while making a positive difference in social and environmental contexts. By supporting organizations with strong ESG scores, investors can influence corporate behaviour and address pressing issues like climate change and inequality. This long-term perspective is central to sustainable finance, encouraging investors to adopt a holistic view of their investment goals while remaining committed to sustainability.

This study aims to contribute to environmental preservation and enhance the economic structures of financial markets by promoting the selection of companies that embrace sustainable practices. Additionally, it seeks to deepen academic understanding of the relationship between sustainable finance, ESG integration, and individual investment, particularly in emerging markets. Furthermore, policymakers have a vital role in raising public awareness and implementing policies that promote sustainable investments, ultimately transforming business practices and enhancing the overall sustainability of the financial system.

## **2. Literature Review**

### **2.1. The Sustainable Finance and concept of ESG**

Sustainable finance is closely linked to ESG factors, warranting a deeper exploration of this concept. ESG encompasses practices used to evaluate the sustainability and ethical implications of an organization or investment decision. Environmental factors focus on a company's relationship with nature, including its emissions, waste disposal practices, and raw material consumption. Social factors pertain to how a firm engages with its employees, customers, and the broader community. This includes issues related to labour practices, diversity and inclusion, and stakeholder engagement. Governance factors relate to the internal systems that govern a firm, encompassing the structure and practices of the board of directors, executive compensation, and transparency in disclosures. Sustainable finance involves making informed financial decisions that account for these ESG factors. It emphasizes purposeful investments in organizations whose products, services, or business models positively impact society and the environment while also delivering financial returns. The overarching goal of sustainable finance is to align financial objectives with sustainability goals, encouraging a focus on long-term development and investment. This investment strategy highlights the importance of integrating ESG factors, fostering awareness among organizations and investors about the long-term implications of their activities. The current approach promotes enhanced environmental stewardship, social responsibility, and improved corporate governance standards, ultimately supporting a more sustainable financial landscape.

The landscape of sustainable finance has significantly expanded in recent years, encompassing various fields and subfields. There is a growing recognition of the need to integrate sustainability into financial systems, which is increasingly being acknowledged by governments, regulatory

bodies, and financial institutions. This shift reflects a broader understanding that sustainable practices are essential not only for ethical considerations but also for long-term financial stability and resilience. As a result, more stakeholders are prioritizing sustainability in their strategies, policies, and investment decisions, leading to a more robust framework for sustainable finance.

## **2.2. Theoretical Foundation**

Based on the literature presented in the prior section, a conceptual framework has been developed to illustrate how the ESG scores affect the investment decisions of individual investors. Besides that, two theories are to be used in this research process, and they are to be described further in the next section. The theories are the stakeholder theory and the theory of sustainable development.

### **2.2.1 Stakeholder Theory**

Stakeholder theory emphasizes the importance of understanding the values, needs, and expectations of various groups that interact with an organization. These stakeholders include employees, customers, suppliers, local communities, regulatory bodies, and the environment, all of whom are affected by the organization's activities. According to this theory, organizations must actively cultivate positive relationships with their stakeholders and manage their affairs in accordance with legal and ethical standards. Engaging effectively with stakeholders can enhance an organization's long-term viability, reputation, and overall performance, as it considers the broader impacts of its actions. Research has shown that ESG policies significantly influence organizational performance, supporting the principles of stakeholder theory.

This study builds upon the core tenets of stakeholder theory, particularly in relation to corporate management and sustainability issues. The methodology employed aligns with existing literature that identifies stakeholder theory as the most appropriate framework for examining a company's sustainability disclosures.

### **2.2.2. Prospect Theory**

Prospect theory, developed by Kahneman and Tversky in 1979, challenges traditional neoclassical theories that assume rational decision-making under risk and uncertainty. Instead, it highlights the role of cognitive biases and heuristics in how individuals assess outcomes. According to this theory, people evaluate potential outcomes based not on their intrinsic value but rather on perceived gains and losses relative to a reference point (Sun et al., 2023; Poyser & Daugaard,

2023). Wang et al. (2022) investigated the effects of green finance policies on corporate ESG performance using data from listed companies between 2006 and 2020 through a continuous difference-in-differences (DID) model. Their findings, in line with Kotsantonis et al. (2019), suggest that the market responds positively to "long-term plans" disclosed by CEOs. The study also revealed that firms with high ESG ratings experienced returns that were 3.8 percent higher per standard deviation of their ESG scores over the medium to long term. This underscores the relevance of prospect theory in understanding how investors perceive and react to corporate sustainability efforts.

### **2.3. The Link Between the Effect of ESG and the Investment Outcomes of Individual Investors**

There has been a growing emphasis on the relationship between ESG factors and the investment behaviour of individual investors in the finance sector. ESG—encompassing environmental, social, and governance considerations—reflects a company’s impact on the environment, its community responsibilities, and its internal management practices. This focus arises from various motivations, including ethical considerations, sector-specific incentives, the desire to align investment goals with personal beliefs, and an awareness of the long-term financial benefits associated with sustainable investing.

Sultana et al. (2018) examined the operational factors influencing diversified stock market investors in Bangladesh, highlighting their preferences for ESG factors. Rounok et al. (2023) explored the potential for aligning investment strategies with the corporate values of companies adhering to ESG principles, thus promoting sustainable development.

Kulal et al. (2023) emphasized that ESG criteria help investors identify sustainable firms characterized by strong governance, robust financial health, and a commitment to environmental and social sustainability. This focus can reduce risks and enhance future returns. However, evaluating the quality of ESG data remains a challenge. The existing literature indicates that while ESG information is abundant, it is often complex and idiosyncratic. As a result, the validity and reliability of ESG data can be inconsistent due to a lack of theoretical frameworks and the scarcity of high-quality ESG information. Thus, a systematic approach is necessary to assess ESG factors effectively in investment decision-making.

## **2.4. The Environmental attribute and individual investment decision**

Beliefs about environmental impacts significantly influence the investment choices of new and inexperienced retail investors. There is a growing sensitivity among investors regarding a company's environmental footprint, which increasingly factors into their investment decisions. This dimension encompasses the evaluation of a firm's operational efficiency in areas such as energy conservation, carbon emissions, resource utilization, pollution management, and actions taken against climate change. In their recent study, Rooh and Hussain (2022) explored how integrating ESG factors into individual investment decisions promotes responsible investing and supports the sustainable development of organizations, contributing to a broader sustainable economy. Sharma et al. (2022) emphasized that for a more sustainable and equitable global economy, ESG factors must be integrated into investment decisions.

Additionally, the environmental aspect was positively regarded in the investment decisions of individual retail investors, alongside the social components. This integration underscores the importance of considering both environmental and social factors in the investment decision-making process, highlighting a shift toward more responsible and sustainable investment practices.

**H1a.** The Environmental aspect has a significant positive effect on investment decision of individual investors.

## **2.5. The Attribute of Social Factors and Individual Investment Decisions**

The analysis of social context is a crucial aspect of decision-making for individual investors. While interest in examining a company's social profile is relatively new, it encompasses a broad range of issues, including corporate social responsibility, employee welfare, human rights, diversity and inclusion, community engagement, and ethical practices. Islam (2022) highlighted that incorporating socially responsible investment (SRI) decisions not only pressures firms to adopt sustainable practices but also contributes to a more just and sustainable global economy. Similarly, Yas et al. (2022) emphasized that the personal decision-making processes involved in SRI create additional pressure on companies to act sustainably, resulting in a ripple effect that enhances the greenness and equity of the global economy. Based on these findings, it can be concluded that the social aspects of investment significantly enhance positive outcomes in the investment decisions of individual investors. Furthermore, the governance factors in investment decisions also play a vital role, contributing to the development of a sustainable global economy.

**H1b.** The aspect of social has a positive effect on investment decision of individual investor.

## **2.6. The Attribute of Governance and Individual Investment Decisions**

This paper aims to identify and analyze the role of governance in the context of individual investors and their investment decision-making processes. Corporate governance refers to the systems and practices that manage and oversee a commercial organization, encompassing executive management, accountability, and ethical considerations.

Dmuchowski et al. (2023) argue that governance factors significantly influence individual decision-making, contributing to the creation of a sustainable and just global economy. Effective governance not only supports sustainable investment policies but also encourages enterprises to adopt responsible behaviours. By prioritizing governance, individual investors can drive positive change in corporate practices, reinforcing the importance of ethical management and transparency in fostering a more sustainable financial landscape.

**H1c.** This study reveals that on the differing factors, the governance aspect has positive impact to the investment decision of individual investor.

## **2.7. The Mediating Effect of Green Innovation and the Role of ESG Practices**

This section proposes that green innovation may enhance the relationship between ESG practices and financial performance. Green innovation refers to the establishment and application of environmentally friendly technologies, processes, and products. By integrating green innovation into their operations, firms can achieve favorable resource utilization, minimize environmental harm, and capitalize on emerging green markets. In this context, green innovation serves as a bridge that translates ESG practices into tangible financial benefits, such as reduced operational costs, increased competitiveness, and access to new markets. Adopting the Return on Sustainability Investment (ROSI) model, we can see how corporate ESG practices improve economic performance through various mediators—termed sustainability drivers—such as innovation growth, enhanced operational efficiency, and improved risk management. A review of relevant literature indicates that stakeholder interaction, risk management, operational efficiency, and innovation are central themes in understanding these mediating elements.

For instance, Vishwanathan et al. (2019) conducted an extensive literature review encompassing 344 articles and identified four key mediating factors that advance financial performance: improved company reputation, increased mutually beneficial stakeholder responses, reduced risks, and enhanced organizational innovation capability. Additionally, risk plays a moderating role between financial performance and investor responses. Among global studies assessing risk, 52 percent indicated a positive link between better ESG scores and reduced ESG risk, suggesting that portfolios with high ESG ratings are likely to experience sustained performance (Hubel & Scholz, 2020).

Almeyda and Darmansya (2019) found that implementing digital transformation enhances both green innovation and ESG performance, indicating that green innovation can act as a moderator in this relationship. The findings of this study contribute to the body of knowledge on corporate ESG performance, enrich the existing literature, and provide valuable insights for company managers and policymakers in making effective decisions regarding ESG practices.

## **2.8. The Environmental aspect and the mediation of Green Innovation**

This study posits that the environmental facet of a firm's operations plays a critical role in defining the resilience of the firm and the ecosystem around it. The environmental factor is magnified through encouraging and supporting the creation and application of environmentally conscious technologies, practices and items, with the assistance of green innovation provides an intermediate between ecological issues and practical solutions that improve the efficiency of resources, reduce release and contribute to sustainable development (Li et al., 2023). In order to empirically investigate the moderation of the corporate.

**H2a.** From the analysis the finding indicates that environmental aspect has positive impact on the adoption of green innovation by the firm.

## **2.9. The Aspect of Social Factors and the Mediating Role of Green Innovation**

This section addresses the relationship between a company and its employees, communities, and other stakeholders. The social impact of green innovation is significant, as it fosters inclusive practices, community engagement, and ethical behaviour. By supporting sustainable job creation, improving working conditions, and addressing social issues, green innovation plays a crucial role in driving societal transformation.

The underlying concept of green innovation is to enhance societal well-being and create positive social outcomes (Zheng et al., 2023). Through initiatives that prioritize social responsibility, companies can build stronger relationships with stakeholders and contribute to a more sustainable and equitable society. This social dimension not only benefits the communities involved but also reinforces the overall effectiveness of green innovation as a mediator in achieving long-term sustainability goals.

**H2b.** The social aspect has a meaningful effect on a firm's adoption of green innovation.

### **2.10. The Governance Aspect and Green Innovation as a Mediating Variable**

The governance dimension of an organization pertains to decision-making, accountability, and adherence to ethical standards in its operations (Jejenywa et al., 2024). Green innovation facilitates greater transparency, fosters authentic leadership, and enhances stakeholder engagement within the governance framework. By promoting these principles, green innovation aligns governance practices with sustainability goals.

This approach not only supports ethical practices but also emphasizes effective risk management. By integrating green innovation into governance strategies, organizations can better manage risks associated with environmental and social impacts, ultimately fostering a culture of responsibility and accountability (Tan & Zhu, 2022). This synergy between governance and green innovation is essential for advancing sustainable practices and achieving long-term organizational success.

**H2c.** The governance aspect has a strong positive relationship with the extent of green innovation adopted by firms.

### **2.11. Green Innovation and the individual investor's investment decision**

This work established that green innovation, which was defined as the incorporation of environmental technologies, practices, and solutions to provide innovations for solving environmental problems had a significant impact on individual investors' decisions to invest (Ha et al., 2024). The rising sustainability concerns have forced investors to consider the possible financial benefits and desirable environmental effects with green technology (Wang et al., 2022). It makes not only a contribution to the implementation of sustainable investment approaches but

also helps to promote green innovation components within investment decisions on individuals and businesses.

**H3.** Green innovation the variability in investment decision of individual investors.

### 3. Methodology

This research uses a questionnaire survey to collect data from individual stock market investors of the PSX. The final data is collected through simple random sampling since it fulfills one of the main research objectives. Therefore, the present study used the positivist paradigm. The use of 200 questionnaires made it possible to garner 82 useful responses at the end of the process. This yielded a response rate of 41% and was the sample on which subsequent analysis was conducted.

**Table 1.** Demographic Attributes (N 82)

	<b>Dispersal</b>	<b>%</b>
<b>Gender</b>	Male	64.57
	Female	35.42
<b>Age</b>	25-30 Years	32.30
	31-35 Years	46.70
	36-50 Years	6.70
	51-55	14.20
	More than 55 Years	6.70
<b>Education</b>	Bachelor degree	32.60
	Master degree	42.60
	Technical degree	16.30
	Others.	8.50
<b>Experience of Job</b>	2-4 Years	26.90
	5 -7 Years	38.60
	8-10 Years	25.20
	More than 10 Years	11.30
<b>Title of Job</b>	Adman officer	39.70
	Assistant Manager	45.10
	High-ranking Manager	10.30
	Director	4.90

#### 3.1 Research Instrument

To ensure that the long-term paradigm is met the measurement scale of ESG needed to be refined for this study hence the call for a research instrument. To assess the attitudes the authors suggest including a cognitive component that requires the subject to explain an object – the attitude towards

which is assessed and an affective component, which implies the subject’s liking or disliking of the object. Consequently, the scales were modified in order to assess three distinct and consistent independent variables: with environmental concerns (including 7 questions), social concerns (including 8 questions) and governance concerns (including 9 questions). The details of the instrument are included in this paper under the Appendix one section. The Questionnaire that was used in the present study was developed based on some dimensions of ESG Accordingly, the United Nation Global Compact (UNGC) outlined the ESG dimensions as follows in 2004 and is accepted internationally. The Likert scale which comprised of a five point scale labelled as strongly disagree, disagree, neutral, agree and strongly agree was used. The identification of the purpose of investment was evaluated with the help of the nominal scale discussed in the earlier studies. To measure the dependent variable as well as the investment decision of the investors, three-item ordinal scales were used.

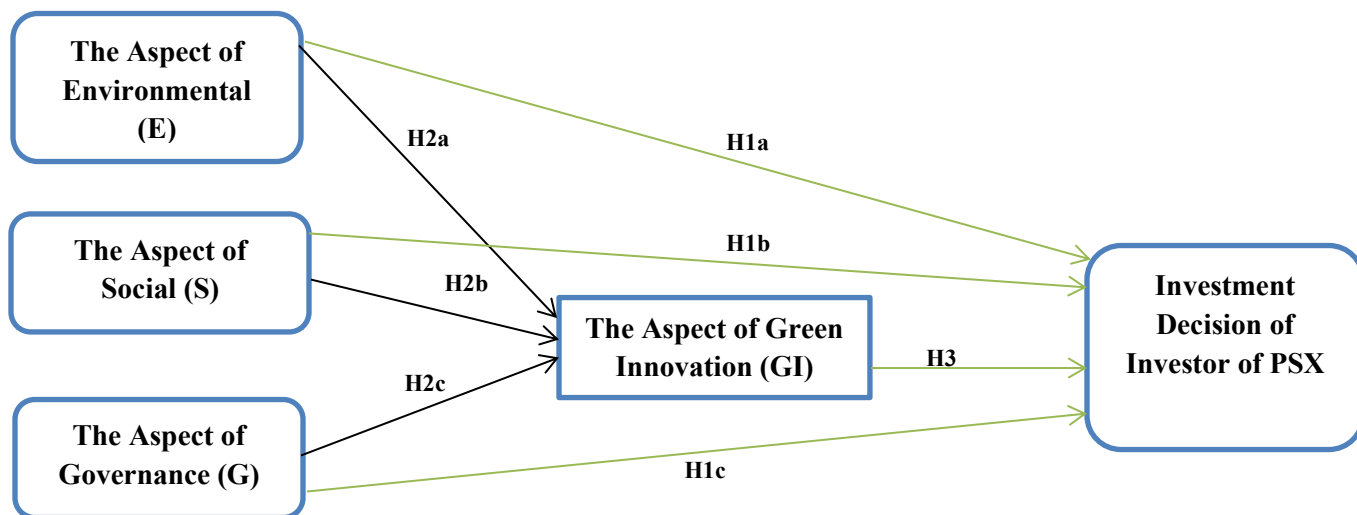


Figure1: Theoretical Model

#### 4. Result & Discussion Analysis

This section provides the results and analysis of the study. Table 1 illustrates the demographic profile of the respondents.

##### 4.1 Basics of Measurement Model

To check the reliability and validity of these hypotheses, two coefficients namely, the Composite Reliability (CR) and Chronic Alpha (CA) were considered by the researchers. It was found that

both of these measures were above the cut off of 0.70 hence establishing their reliability and validity of the two measures. The results of the subsequent extension on convergent validity supported that each of the constructs had a weighted Average Variance Extracted (AVE) was higher than 0.50. Furthermore, the value of loadings of all the constructs reached or exceeded the minimum value of 0.70 as recommended by Sarstedt et al. (2017). Using discriminant validity, two indexes namely Fornell-Larcker and the HTMT ratio are usually used by researchers in assessing on a test. In the study, the Fornell and Larcker method by Fornell and Larcker (1981) showed that the square root of the average variance extracted AVE has a bigger value than the correlation coefficients obtained between the AVE and other constructs. Table 2 enunciates the reliability and validity coefficient factors of each construct.

#### 4.2 Path Coefficients

Bootstrapping technique has also been employed in an attempt to gauge the importance of the hypotheses under consideration. The results further show that there is a substantially positive and statistically significant correlation between H1a, H1b, and H1c in the context of the direct association estimate while controlling for the covariates.

**Table 2.** The results of all constructs with their reliability and validity

	Mean <sup>1</sup>	Std. <sup>2</sup> Dev.	CA <sup>3</sup>	CR <sup>4</sup>	AVE <sup>5</sup>	1	2	3	4	5	6
<b>1 E-aspect</b>	0.987	0.052	0.885	0.819	0.645	0.981					
<b>2 S-aspect</b>	0.846	0.135	0.859	0.849	0.876	0.343	0.931				
<b>3 G-aspect</b>	0.895	0.011	0.857	0.818	0.894	0.514	0.352	0.689			
<b>4 GI</b>	0.875	0.071	0.883	0.885	0.775	0.437	0.424	0.544	0.648		
<b>5 Inv. Dec</b>	0.879	0.062	0.874	0.875	0.878	0.545	0.543	0.654	0.485	0.643	

<sup>1</sup>Mean <sup>2</sup>Standard Deviation <sup>3</sup>Cronbach's alpha <sup>4</sup>Composite Reliability <sup>5</sup>Average Variance Extracted

The findings show that H2a is positively related with H2a, H2b, and H2c with coefficients of 1.292, 1.348, and 0.532 respectively, and at  $p < 0.000$ . The results also show that H3 has a coefficient of 0.708 and its p-value is 0.000, which are evidence for a positive correlation. In all cases to which empirical evidence is available, this evidence supports a high degree of interdependence among all the suggested pathways. As confirmed by community consensus, there is confirmation of hypotheses H1a to H1c that suggested that there was a positive correlation between ESG factors and investment decisions to be made by individuals. This in fact has been supported by hypotheses H2a to H2c on the indication of ESG factors in the development of

environmentally sustainable innovations. In addition, the actual results that support hypotheses are also provided and summarized in a tabular form in Table 3. These results support the works of (Xie, 2022; Rossi et al., 2021; Albort-Morant et al., 2016).

**Table 3** Path Coefficient

Hypothesized Path		( $\beta$ )	St. Dev.	t-values	p value	Decisions
H1a	Environment E-aspect -> InvDec	0.775	0.19	3.492	0.001	Supported
H1b	Social S-aspect ->InvDec	0.407	0.112	2.882	0.004	Supported
H1c	Governance G-aspect -> InvDec	0.602	0.077	6.793	0.000	Supported
H2a	Environment E-aspect -> GI	1.392	0.184	6.812	0.000	Supported
H2b	Social S-aspect -> GI	1.448	0.147	9.016	0.000	Supported
H2c	Governance G-aspect -> GI	0.632	0.072	7.215	0.000	Supported
H3a	GI -> InvDec	0.608	0.042	16.923	0.000	Supported

Note: Investment Decision (InvDec), Green Innovation (GI)

### 4.3 Discussion

The discussion section raises the seemingly growing prominence of the ESG factors in influencing the investment decisions of the IPOs within the PSX. We accept all the hypothesis significantly. The integration of ESG elements has received attention as investors begin to recognize that their investment actions impact the greater environment. The integration of ESG factors in an overall approach gives investors a general outlook of solidity and solace of corporations as to deter risks that affect investment portfolios and boost

general returns on investment. In addition to this, in the case of the PSX the importance of green innovation cannot be overemphasized.

With the current global environmental issues, businesses which support for sustainability and the environment are more strategically placed in order to survive and expand. These innovative enterprises also correspond to international activities to mitigate climate change impacts while also leveraging growth sectors and consumer tastes. For this reason, the interest to companies with ESG criteria and those that are leaders in sustainability is increasing among individual investors. Such recognition is based on the view, which asserts that more of these companies are better situated for growth and success in the changing economic prospects.

## **5. Conclusion**

The discussion highlights that the investment environment of the Pakistan Stock Exchange (PSX) cannot overlook the significance of ESG factors for individual stakeholders. Integrating ESG considerations transcends traditional investment strategies, equipping investors with tools to make informed decisions that reflect their values and have positive societal impacts. Moreover, the role of green innovation is crucial in this context. As sustainability becomes increasingly vital for global businesses, green innovation not only fosters a sustainable business environment but also provides a competitive edge for future growth and development. By investing in companies that adhere to ESG principles, investors can ensure their portfolios align with social benefits, thereby enhancing both value and environmental quality. Given the ongoing evolution within the PSX, it is essential to embrace the interconnectedness of ESG factors and green innovation. This understanding is pivotal for shaping investor portfolio choices and advancing the overall economy.

For individual investors in the PSX, it is imperative to incorporate ESG factors into their investment processes. By recognizing how environmental, social, and governance issues influence organizational performance and investment sustainability, investors can make more informed, socially responsible decisions. Conducting thorough analyses of a company's ESG activities and key performance indicators (KPIs) can reveal vulnerabilities and growth opportunities. Additionally, actively seeking companies committed to green innovation is vital. Investors who back firms that prioritize innovative, environmentally sustainable technologies not only contribute to societal progress but also enhance their own financial prospects in an evolving market. By aligning investments with ESG factors and fostering an environment that supports green

innovation, investors can achieve financial returns while promoting sustainable business practices and driving positive change within the PSX.

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