

## THE IMPACT OF ENVIRONMENTAL DISCLOSURES ON INVESTOR BEHAVIOR: MEDIATING ROLE OF CORPORATE REPUTATION

**Touseef Ahmad\***

PhD Scholar, School of Business Administration, National College of Business Administration & Economics, Lahore, Pakistan.

**Dr. Alia Ahmed†**

Professor, School of Business Administration, National College of Business Administration & Economics, Lahore, Pakistan.

### Abstract

*The purpose of this research is to establish the effect of environmental disclosure on the PSX investors and for that, a purposive sample of 390 investors have been taken. The study focuses on the mediating effects of corporate reputation between environmental disclosure and investors' decisions. whereby data collected through structured questionnaires and analyzed with the application of advanced statistical techniques to validate the proposed hypotheses. The study revealed that the level of environmental disclosure plays a decisional role in influencing investors partially mediated by corporate reputation. Thus, this work enriches the literature on sustainable investment and offers management implications to organizations that aspire to improve their image and attract sustainable finance stakeholders.*

**Keywords:** Environmental disclosures, Corporate Reputation, Investor behavior, Sustainable investment

### INTRODUCTION

Emerging issues including climate change are known globally as problems that affect society and the economy as a whole. In the fight against climate change, governments and businessmen are coming up with ways to increase mutual endeavor. For instance, 193 countries, including the United States, joined the Paris Agreement, which is a legally binding treaty designed toward mitigating GHG emissions by September 2022. A number of firms are now formally declaring their environmental objectives and targets and more stated that they aspire to achieve net-zero emissions across their operations by 2050 in accordance with the Paris Agreement (Alessi et al., 2024). Recently, many countries have acknowledged green finance as a key determinant to achieve Paris agreement (Chang et al., 2022; Dervi et al., 2022; Wang et al., 2023; Audi et al., 2024). Despite the rising pressure from the stakeholders, including shareholders, customers, and governmental bodies, for the most part, the corporations' participation in the CSR and ESG practices remains a high-blown and relatively non-mandatory process in most regions of the world. Thus, the regulatory environment justly allows companies a high level of freedom when it comes to the manner, scope, and frequency of their ESG information's disclosure (Zhu, 2024; Ahmad & Alvi, 2024).

In last few decades, firms and investors have shown interests in Corporate Social Responsibility (CSR), Environmental, Social, and Corporate Governance (ESG), and Socially Responsible Investment (SRI). The recent crises like the COVID-19 pandemic or present situation in between Ukraine and Russia and subsequent energy crises in Europe have again brought these topics in focus. The incorporation of ethics in investment has expanded tremendously over the past decades. Today many investors are now adopting investing responsibilities on the policies of the firms with which they are investing, known as responsible investing. Today's investors are also interested not only in the value of investments, but also in the characteristics that they can influence society. It is done within an investment framework that ordinarily encompasses environment, social, and governance (ESG) factors. Different from conventional approaches to stock selection, SRI has special screens to allow or reject stocks on ESG issues. This trend has continued to unfold due to the ever emerging international sustainability concerns (Alsahlawi et al., 2021; Audi, 2024).

\* [touseefahmad\\_pu@yahoo.com](mailto:touseefahmad_pu@yahoo.com)

† [dralia@ncbae.edu.pk](mailto:dralia@ncbae.edu.pk)

Financial market decisions are made with an objective of future economic returns that involve some form of risk and uncertainty and market information news and rumors play a significant role in these decisions. Risk aptitude is also determined by personal characteristics, psychology of investor. The literature is vast on institutional investor behaviour including (Alda, 2019; Barko et al., 2021; Basse Mama & Mandaroux, 2022; Bebhuk et al., 2017; Nili & Asadi, 2024). On the other hand, limited empirical literature exists to examine the factors that affect trading behaviours of individual investors (Ansari et al., 2023; Ali et al., 2021; Blankespoor et al., 2019; Nguyen et al., 2019a; Sulethi & Ali, 2024; Sahai, 2023).

Individual investor is lacks with resources, has less portfolio diversification, and most of the time trading behavior is influenced by high expectations. In case of individual investor trading behaviours, there is lack of evidence and majority of the existing literature is based on developed economies (Nguyen et al., 2019b).

Prior research demonstrated country variation in how researchers view environmental attention in, for example investment decisions, including a study that found ESG disclosures were irrelevant to the investor (Moss et al., 2020; Sulehri et al., 2024). Even if regards to the argument of ESG consideration in investment or the non-presence of such issue in decision-making about investment, But empirical evidence is available in favor ESG effect on financial returns (Chen & Xie, 2022; Sulehri et al., 2024). More research to know investor who take into consideration environmental concerns in the investment process is important when there is a proven market performance (Ademi & Klungseth, 2022; Zeniors, 2024). Most of the scholars urged more elaboration on the investor's perception regarding information disclosure and directed the firms towards accurate information (Jonsdottir et al., 2022; Yan & Sriboonchitta, 2024).

Based on the gap highlighted in this study it seeks to examine the interaction between environmental disclosure and retail investor response and how corporate reputation influences these signaling of environmental concerns affect investment response. While, various scholars have investigated the relationship between environmental disclosure and investment action, yet there is a research gap concerning the exact process that individual investor use to decipher the disclosures made by firms, in light of signaling theory framework. In addition, this research also seeks to establish how Perceived corporate reputation influences investor perceptions of the firm's environmental performance.

## PRIOR LITERATURE AND HYPOTHESIS DEVELOPMENT

The evolution of behavioral finance has made it clear that the contents of corporate disclosures affects individual investor decisions (Barberis & Thaler, 2002) Therefore, regulators and firms are concerned with the type of information that an individual investor relies on when making investment decisions.

Glavina (2022) stated that environmental factors has provided valuable opportunities for sustainable investment in financial market. It has been established that ESG performance is a critical consideration in investment processes (Amel-Zadeh & Serafeim, 2018; Eccles et al., 2017). Pinney et al. (2019) argued that at the moment, investors are focusing on companies with ESG performances, as to mitigate the risk in their portfolio. However, challenges and risks associated with ESG data accessibility, standardization, and credibility are also present (Friede, 2019; Hain et al., 2022). For example, corporate greenwashing is one of the biggest challenges (Lashitew, 2021; Torelli et al., 2020). This will lead to investor distrust (Guo et al., 2018; Pizzetti et al., 2021) and ultimately increased cost to acquire capital (Tseng & Guo, 2022). Kishan (2021) revealed that now investor are more engaging their rights in corporate annual general meetings and have demonstrated their concern over board members' unsatisfied commitments to sustainability.

Environmental, social and governance factors are important for firm's decision making and investment, especially for sustainable business and to manage their risks (Dhaliwal et al., 2011). ESG framework for sustainable development is an efficient solution to financial crises and other significant problems in local and international stock markets (Ademi & Klungseth, 2022; Lokuwaduge & Heenetigala, 2017). Sultana et al. (2018) stated ESG guarantee sustainable returns and effective risk management and investment, particularly for long term sustainable business operations and to mitigate their risk (Dhaliwal et al., 2011). The ESG framework for sustainable development provides efficient solution to financial crises and other major issues in local and international stock markets (Ademi & Klungseth, 2022; Lokuwaduge & Heenetigala, 2017). Sustainable practices are important for

corporate to safeguard environment and natural resources especially when climate change is turning into a serious issue for countries (Dobbs & Van Staden, 2016). At the moment, there is an increasing pressure from investors to integrate ESG into corporate operations (Arjaliès et al., 2023; Shafiq et al., 2020). While there is a vast literature on the quantifiable aspects of ESG factors, the assessment of the investor's qualitative perspective of ESG integration is still relatively uncharted territory (Buallay, 2020; Hongming et al., 2020; Khan, 2019; Whelan et al., 2021).

### **Signaling Theory**

Companies are used to transmit signals in order to minimize the information gap (information asymmetry) between them and their users in order to disseminate their image, goals, policy, and achievements (López-Santamaría et al., 2021). This process is explained by Signaling Theory (Karaman et al., 2020). Signaling Theory relates to the process through which a company seeks to convey information both to stakeholders and the market through sending signals that represent its social responsibility (Bae et al., 2018).

The theory identifies three main components: the transmitter, the recipient and the message. The signal is the previously private good or bad news that senders decide to release or conceal from the receivers (Connelly et al., 2011). Signalers are often employees who possess material organizational, product or individual privileges that are unavailable to the outside world (Taj, 2016).

Signaling Theory has importance in numerous disciplines of study such as finance (Francis et al., 2010), and corporate governance (Certo, 2003). Further, it has been used for investigate organization with stocks in the stock exchange (Mantari, 2017). Over the last decade or so, Signaling Theory has found its way into sustainability research but there is still a lot of room for further development and research on the signals that organizations signal out (López-Santamaría et al., 2021).

Signaling theory in corporate sustainability indicates that managers undertake sustainability reports to convey information about their firm's sustainable development policies to other stakeholders to the market (Hassan et al., 2020). Such sustainability disclosure practices include transparency and financial stability reports as well as environmental and social issues (Bae et al., 2018). Still, an essential limitation is that investors and other interested parties may have difficulties determining the real company's performance because sustainability reporting is still often only a recommendation (Mahoney et al., 2013).

But even though the idea has attracted increased attention, sustainability reports remain fairly sparse (Ching & Gerab, 2017). Signaling Theory has been used to examine one or many facets of sustainability reporting including GRI adoption and performance indicators (Legendre & Coderre, 2013).

Consequently, in light of the above discussion, we propose that individual investor response to environmental disclosures in stock exchange will be positive, but the strength of such investment behaviours towards these disclosures will be a function of Corporate reputation.

### **Environmental Disclosures and Investors**

Environmental information can be used to decrease information asymmetry through communicating additional and useful information to investors (Du & Yu, 2021; Feng et al., 2018; Yu et al., 2021). McLennan (2021) stated that The Global Risks Report 2021 identified top three risks that within next decades' world is going to face are environmental risks: climate inaction, natural disasters, and other man-made environmental disasters. Thus, environmental disclosures are mainly important to investors, analyst, and portfolio managers for evaluation of risk (Bengo et al., 2022).

Environmental concerns involve operation, sustenance and enhancement of the natural system and the environment. Environmental factors have been perceived as one of the major factors influencing investors' decisions and this is evidenced in literatures such as Japan, India, France and Australia. For instance, investors consider environmental matters as one of the most powerful non-financial factor in investment management (Nakamura, 2013; Rooh et al., 2021).

Hence, with investors receiving heightened sensitivity towards environmental problems across the globe, it has made investors want to look into the correlation of environmental problems with individual investor behavior in Pakistan. Based on notion study proposed its first hypothesis that:

H1: Environmental disclosures influence investment decision of individual investor in PSX.

### Environmental Disclosure and Corporate Reputation

Corporate reputation as an intangible and the most valuable organizational asset of firms that offer competitive advantage (Islam et al., 2021). Gallardo-Vázquez et al. (2019) revealed that it is evident from numerous researcher CSR has positive relationship with firm reputation (Gallardo-Vázquez et al., 2019). Also, Bear et al. (2010) has also pointed out that irrespective of operations, CSR enhances corporate image. CSR practices influence firm image and which in result, customer loyalty and stakeholder engagement (Islam et al., 2021; Javed et al., 2020; Le, 2022). The internal and external stakeholder's positive perception about the firm's Social responsibility leads to positive reputation and further help in easy funding from investors and financial institutions (Singh & Misra, 2021).

Based on supporting literature and theory, the study propose hypothesis:

H2: Environmental disclosures positively influence Corporate reputation.

### Corporate Reputation and Investor Behavior

Reputation reflects credibility and reliability and therefore involves not only how a firm chooses to behave but also how it is perceived by others and in relation to other competitors (Bebbington et al., 2008; Tang et al., 2012). Several benefits of gaining positive stakeholders' perception are, for example, getting investors' confidence, and engaging, maintaining, and developing expert employees (Dangelico, 2015), improving stakeholders' relations, and increasing customers' loyalties (Zou et al., 2015).

A strong corporate reputation is a highly valuable intangible asset that influences stakeholders to engage positively with a company. In this regard, signaling theory offers an avenue within which to comprehend how certain actions and decisions by the firms create signals that are later deciphered by the stakeholders to come up with the overall view of the firm (Baruah & Panda, 2020) For individual investors, corporate reputation plays a pivotal role in shaping investment decisions. Investors often rely on a firm's reputation as an indicator of its credibility, stability, and long-term viability, which reduces perceived risks and enhances trust in the organization's ability to deliver consistent returns.

H3: Corporate reputation impacts individual investor decisions in PSX

In the context of environmental disclosures, the impact of corporate reputation becomes even more pronounced. Reporting environmental information from a reputable organization can be associated with the organization's commitment to environmental, transparency, and ethical issues which are well appreciated by SRI investors. These signals not only reinforce the company's credibility but also influence individual investors who value environmental responsibility as a criterion for their investment decisions. Thus, corporate reputation and credible environmental disclosures together create a compelling narrative that can attract and retain investors while enhancing the firm's overall market appeal. Drawing on the discussion this study propose hypothesis;

H4: Environmental disclosures impacts individual investor decision in PSX through corporate reputation.

### METHODOLOGY

Based on positivism philosophy, quantitative research design, and deductive research approach this study research strategy is survey method The research used a quantitative and cross-sectional approach to gather data from individual investors actively investing in Pakistan stock exchange. A self-administrative questionnaire through purposive sampling was employed for data collection. 550 questionnaire distributed to individual investors through social media i.e. what's app investors groups, LinkedIn, E-mail and in person. Out of 650 we received 420 responses (76%) after receiving responses 30 questionnaire abandon due to significant missing values so kept 390 responses for final analysis.

### MEASUREMENT

This study has used five Likert scale to assess all the variable with responses from strongly disagree to strongly agree. *Environmental disclosures* scale was adopted from (Sultana et al., 2017) with 7 items, *investment behavior* adopted from (Keller & Siegrist, 2006; Naveed et al., 2020; Tauni et al., 2017) with 3 items and *corporate reputation* from (Schwaiger, 2004) with 7 items.

### RESULTS



Reliability analysis is shown in table 1 for the constructs i.e. environmental disclosure, corporate reputation, and investor behavior. It includes Cronbach's alpha (CA), rho\_A, composite reliability (CR), and average variance extracted (AVE) values (Fornell and Larcker, 1981). Cronbach alpha is used to measure internal consistency, and the appropriate result is higher than 0.70 on average, indicating acceptable reliability. Cronbach alpha value for environmental disclosure is 0.93, which states that it is higher than the threshold value of 0.70, clearly indicating the internal reliability is greater. On the other hand, Cronbach alpha for corporate reputation is 0.87, which again states that the internal reliability is higher which give more indulgent of the variables. Hence, investor behavior's Cronbach alphas value is also higher than the threshold value i.e. 0.93. The results for rho\_A and composite reliability provide an enhanced awareness of the constructs' dependability. Composite Reliability scores more than 0.70 are deemed adequate indicating construct reliability however two item of corporate reputation removed cr4, cr6 due to low factor loading. Composite reliability for the constructs is 0.93 for environmental disclosure, 0.87 for corporate reputation, and 0.93 for investor behavior respectively. This states that the reliability measurement is fit enough. Similarly, the AVE values represent the quantity of variance attributed to the construct in comparison with variance produced by measurement error and values larger than 0.50 are envisioned. All three constructs are fulfilling the threshold value of AVE i.e. 0.66 for the ED, 0.59 for the CR and 0.83 for the IB; these values states more than 50% of the variance are explaining the constructs (66%, 59%, and 83% respectively). Furthermore, table 1 shows that the evaluation enacted the discriminant validity conditions, as the square root value of AVE exceeds the correlations of variables (Zaiğ & Berteau, 2011).

**Table 1: Validities and factor loadings**

Variables	Items	Loading	CA	AVE	RHO_A	CR
	ED1	0.78				
	ED2	0.74				
	ED3	0.76				
ED	ED4	0.88	0.93	0.66	0.93	0.93
	ED5	0.86				
	ED6	0.83				
	ED7	0.80				
	CR1	0.8184				
	CR2	0.7912				
CR	CR3	0.6513	0.87	0.59	0.88	0.87
	CR4	0.7719				
	CR5	0.8052				
	IB1	0.9139				
IB	IB2	0.9881	0.93	0.83	0.94	0.93
	IB3	0.8352				

CA: Cronbach Alpha// AVE: Average Variance Extracted// CR: Composite reliability// ED: Environmental disclosure// CR: Corporate reputation// IB: Investor behavior

**Table 2: Discriminant Validity: Heterotrait-Monotrait Ratio**

Construct	CR	ED	IB
CR	-	-	-
ED	0.3700	-	-
IB	0.3527	0.3943	-

CR: Corporate reputation// ED: Environmental disclosure// IB: Investor behavior

Table 2 displays a validity analysis utilizing the Heterotrait-Monotrait Ratio (HTMT) Henseler et al. (2014) of correlations for constructs (environmental disclosure, corporate reputation and investor behavior). Construct values of 0.85 and 0.90 were initially proposed in the literature for HTMT discriminant validity (Henseler et al., 2014). The results in table 2 demonstrate discriminant validity because none of the HTMT coefficients exceeds the conservative limit of 0.85 (Henseler et al., 2016). Finally, there are no questions about the model's validity or reliability.

When compared to other constructs, Fornell & Larcker (1981) believe that AVE values should be higher than correlation values. According to Kawecki and Ebert (2004)), discriminant validity is judged sufficient at the 0.5 level. Lopsided ratios are considerably greater than non-diagonal values, implying discriminant validity. Latent conceptions, according to (Alarcón et al., 2015), are separate and do not overlap. Table 3 demonstrates that all values are within acceptable limits.

**Table 3: Discriminant Validity: Fornell-Larcker Criterion**

Construct	CR	ED	IB
CR	0.5929		
ED	0.1383	0.6639	
IB	0.1256	0.1569	0.8364

**CR:** Corporate reputation// **ED:** Environmental disclosure// **IB:** Investor behavior

Structural Equation Model (SEM) analysis results are shown in table 4, which provide explanations for the connections between constructs: environmental disclosure, corporate reputation, and investor behavior. There's a significant relationship between ED → CR ( $\beta = 0.37$ ,  $p < 0.05$ ). On the other hand, CR → IB ( $\beta = 0.24$ ,  $p < 0.05$ ) stating that the relationship is significant. Hence, ED → IB ( $\beta = 0.30$ ,  $p < 0.05$ ), again the connection between the two is significant.

**Table 4: Direct Effect**

Effect	$\beta$ Value	Mean value	Standard error	T-value	P-value
CR → IB	0.24	0.24	0.06	3.62	0.00
ED → CR	0.37	0.37	0.07	5.30	0.00
ED → IB	0.30	0.30	0.07	4.17	0.00

**CR:** Corporate reputation// **ED:** Environmental disclosure// **IB:** Investor behavior

Mediation result shown in table 5 states that corporate reputation mediates the relationship between environmental disclosure and investor behavior i.e. ( $\beta = 0.29$ ,  $p < 0.05$ ). Therefore, after having done the analysis the findings showed that all hypotheses have been accepted. Figure 1 shows the graphical representation of the structural equation model.

**Table 5: Mediation effect**

Effect	$\beta$ value	Mean value	Standard error	T-value	P-value
ED → CR → IB	0.29	0.09	0.03	4.79	0.00

## DISCUSSIONS AND CONCLUSION

The study investigated the concerns for Environmental issues on investment decisions. Preference of the respondents towards environmental issues indicates their environmental screening to secure their investment return. This finding is consistent with (Cai et al., 2024; Lee & Hutchison, 2005; van der Laan Smith et al., 2010) environmental issues are most influential factor while in the investment decision. Environmental disclosure positively influence corporate reputation results are consistent with (Maaloul et al., 2023).

Environmental disclosures by firms positively impact investor decision in Pakistan stock exchange as study hypothesized. So, based on results first hypothesis accepted. Secondly, considering the signaling theory framework firms signal to stakeholders in our scenario investor as recipients of signals make decision on the basis of information emitted from firms. As this study added into literature by considering credibility of signaler impact decisions making such as corporate reputation. So, all of hypothesis accepted such as environmental disclosure indicates performance and concern of organization for sustainability, environmental issues which is a tool for repute or image then good reputation adds credibility to disclosure which ultimately impacts investors decision making.

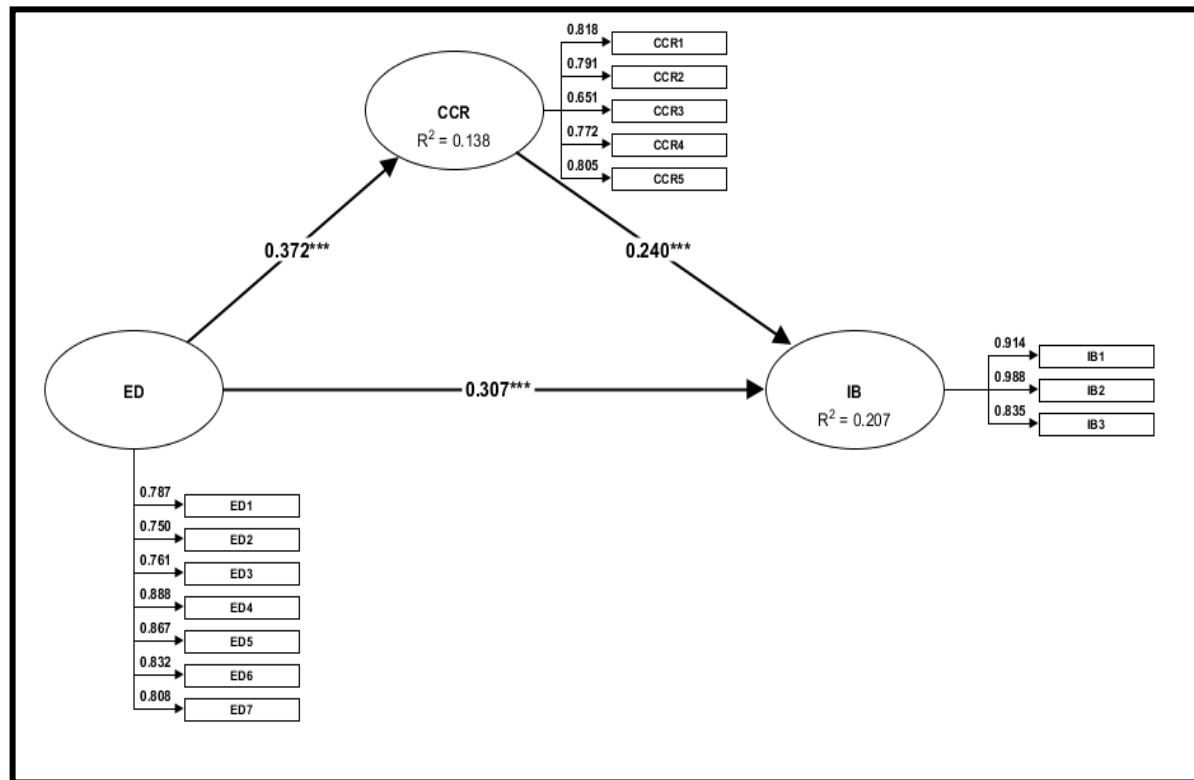


Fig 1: Model

Firstly, this study contributes into literature by incorporating corporate reputation into signaling theory framework specifically in context of Pakistan. Secondly, most of study has utilized corporate reputation as multi stakeholders construct in management discipline. Whereas in accounting and finance reputation has been measured mostly through financial indicators lacking in investor perceptions. So study used corporate reputation for behavioral finance which as utilized perceived reputation of investor. Moreover, policy makers and corporate executive can use environmental performance for their positioning in financial markets. With a surge in responsible investment firm only create positive impression but also consider value relevance for shareholders, how these sustainability initiatives will impact numbers as investor are more interested in numbers.

This study has some limitations. First limitation of using survey data because subjects are inclined to give answers that they believe will be attractive to the researcher in this case, we tested the hypothesis using a survey and hence

results are likely to be influenced by response bias. Concentration on the Pakistani Stock Exchange limits the generality of the results for other markets because of different regulatory and cultural environments. At the same time, the temporal lens viewed in the study and other mediating factors like trust or transparency further indicate avenues for research. More research could be conducted in other markets and longitudinal study offers detail to the changes taking place in that market. Using other psychological variables like risk propensity, cognitive frames and ethical beliefs may add more value to pursuit of understanding how investors perceive these environmental disclosures. Extension of mediators and moderators and examination of the impact of technology and policy would expand this line of research.

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