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# Does corporate social responsibility and green product innovation boost organizational performance? a moderated mediation model of competitive advantage and green trust

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## ABSTRACT

The study contemplates the impact of corporate social responsibility (CSR) and green product innovation on organizational performance while considering the moderating role of competitive advantage and mediating role of green trust. Data have been accumulated through a structured questionnaire while distributing 259 questionnaires among employees working in the Pakistani small and medium-sized enterprises (SMEs) companies. In this study, we have conducted reliability, validity, discriminant validity, and structural modeling analysis by using SPSS and Smart PLS for data analysis. The results have identified a significant and positive impact of CSR and green product innovation on organizational performance. Remarkably, green product innovation positively influences competitive advantage. Competitive advantage mediates the relationship between corporate social responsibility, green product innovation, and organizational performance. Further, this study has filled the lacuna of extant literature while analyzing the green trust moderating role between product innovation and organizational performance.

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## 1. Introduction

In today's world of uncertainty, the advancing climate concerns have lightened the spillover results of environmental vulnerabilities, adversely influencing the firm's performance. The regressive natural issues (e.g., global warming, climate changes) have provoked worldwide commerce to experience severe environmental repercussions in the shape of natural deterioration and climatic misfortune. Predominantly, the

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propelling climatic concerns have drastically overwhelmed the world corporate economies by making the companies realize the need for strict environmental regulation, thereby consolidating ecological concerns in the firm's business strategies (Salem et al., 2018).

Significantly, the developing harmony for natural assurance, growing consumer awareness, and global competitiveness has upheld corporations to experience a move of preferences to eco-friendly practices, tremendously accepting the strategic tool of sustainable development (i.e., Corporate Social Responsibility) (Abdallah & Al-Ghwayeen, 2019). Corporate Social Responsibility (CSR) refers to an organization's voluntary exercise of integrating environmental, social, and economic concerns into a firm's activities, thereby strengthening the relationship with the firm's stakeholders (Hernández et al., 2020).

Undoubtedly, CSR and sustainability are two strong trends of the corporate world urging the change of social conscience, subsequently contributing towards social and environmental welfare. CSR guides businesses (i.e., Small-Medium Enterprise) to relish economic benefits in the shape of the social sphere. Small and Medium-size enterprises are sensitive to CSR. In general, large corporations ought to follow CSR practices. But in the context of SMEs, the reality is different.

Notably, SMEs engaging in CSR activities bring economic and ecological change in society. The integration of viable business processes makes the enterprises gain sustainable development. Indeed, in the context of CSR, the increasing potential of acquiring sustainable development contends an urgent need to emphasize SMEs of the developing nations. Considerably, the research shows that in emerging countries like Pakistan, CSR is at the earliest stage of development where organizations are gradually adopting environmentally friendly practices (Anser et al., 2018). Despite the increasing significance of environmental sustainability, the existing literature on CSR shows that prior studies have scarcely explored the information regarding the SME's business (Watto et al., 2020). Therefore, it has become vital to perform a study that examines SMEs' performance in the context of CSR.

Corporate social responsibility is an imperative instrument for achieving environmental sustainability by improving the organizations' performance. In Pakistan, SMEs businesses have reduced environmental issues by nurturing organizations' performance (Khan et al., 2019). Similarly, in other developing countries, comparative outcomes suggest that organizational performance is significantly related to CSR activities (Singh & Misra, 2021). In addition, corporate social responsibility enhances the firm's performance by valuing the interest of the stakeholders, substantially accomplishing a distinct advantage over the competitors. Given the sustainability practices, CSR is a unique concept to organization preservation that translates the company's sustainable actions into an enduring competitive benefit. Perhaps, in today's competitive world, CSR leads enterprises to experience long-term sustainable growth, in particular achieving unique differentiation (Valdiansyah & Augustine, 2021). Hence, in developing countries, CSR is used as a vital tool to gain feasible advancement making the organization's innovation (i.e., green product innovation) a part of the firm's ecosystem.

As broadly discussed, the developing environmental concerns influence the firm's innovation. In particular, green innovation (e.g., green product innovation) drives

organizational competitiveness (Qiu et al., 2020), thus alleviating the firm's ecological activities. Primarily, this refined notion of going green nurtures the organization's performance while ensuring the well-being of society and the environment. The expanding importance of the green business model reinforces sustainable organizational performance (Fernando et al., 2019). Hence, the ecological movement of green product innovation energizes the firm to engage in environmentally friendly activities, thus achieving an enduring competitive advantage (El-Kassar & Singh, 2019).

Consistently, research illustrates, green product innovation to be a way of strengthening green trust. Green trust refers to individual eagerness to favour a product that exceeds the consumers' desires concerning the product's credibility and performance. Buyers prefer environmentally friendly products (i.e., green items) over ordinary products. This emerging demand for green products motivates companies to preserve the natural environment, boosting buyers' certainty in the shape of green trust (Hameed & Waris, 2018).

In particular, despite the increasing significance of CSR and green product innovation, scarce research has been found regarding CSR and its relationship with the supposed variables (i.e., organization performance and competitive advantage) in the context of SMEs business (Albort-Morant et al., 2018). Perhaps, this study provides an in-depth analysis on the research subject, providing future researchers an opportunity to address the research gap in the context of SMEs. Indeed, this study expands the body of knowledge on SME businesses, understanding the relationship between CSR and firms' performance. For integrating the ethical and ecological bottom-line approach, this paper investigates the relationship between competitive advantage and organizational performance by articulating a modified conceptual framework with critical examinations. The objectivity and novelty of the study allow us to display empirical evidence regarding green product innovation and firms' competitiveness.

Further, by incorporating the ecological dimension, the research calls for the mediator (i.e., competitive advantage) and moderator (e.g., green trust) while extensively exploring the effect of expected variables on SMEs' performance. Significantly, this study provides a novel model assisting future researchers and practitioners in their work. The study recommends the policymakers, strategists, senior management, and entrepreneurs investigate the SMEs' performance under the CSR measures.

As a reminder, this study follows the intended pattern. Section 1 provides the introduction of the topic, while Section 2 (i.e., literature review) supports the hypothesis section by justifying the conceptual framework with empirical evidence. Furthermore, Section 3, research methodology, suggests appropriate research tools and methods for developing the data analysis section (i.e., Section 4). Moreover, Section 5 explains the research discussion, and Section 6 illustrates the conclusion while providing directions and implications to future researchers.

## **Theoretical background and hypotheses development**

Due to the increasing environmental concern of the public, organizations and businesses have become more responsive to adopting eco-friendly practices (i.e., CSR, green innovation), hence nurturing the corporation's performance and competitiveness. The

organizations' goal is not to earn maximum profit but to gain sustainability through continuous growth and superior performance. Consequently, Section 2, the literature review extensively contributes knowledge while discussing some significant notions: Corporate Social Responsibility (CSR), Organizational Performance (OP), Green Product Innovation (GPI), Competitive Advantage (CA), and Green Trust (GT). Indeed, this section follows the same pattern for presenting the desired variables.

### **Corporate social responsibility and organizational performance**

Business ethics orientation significantly adds to the empirical research on CSR, driving the organization's social performance. The classical approach of CSR alludes to the social and environmental dimensions, directing the corporation to achieve sustainable performance. CSR fundamentally pursues goals beyond economic achievement to gain long-term ethical performance (Constantinescu & Kaptein, 2020). SME enterprises, which constitute the backbone of the socio-economic system, are continually evolving the business models, substantially driving the need for CSR adoption in business processes. In support, research indicates that CSR actions improve enterprise performance (i.e., SMEs') (Bacinello et al., 2021).

Corporate social responsibility is a strategic concept defining the firm's social, ethical, and environmental commitments that ought to maximize stakeholders' interest by satisfying the needs of the global society (Svensson et al., 2018). In general, CSR contributes towards the welfare of society and the environment. CSR defines the sense of responsibility of the firms towards the global communities while accelerating the firm's performance. Indeed, findings reveal that eco-friendly practices strengthen the firms' overall performance (Long et al., 2020).

In addition, the developing stakeholder viewpoint related to the CSR practices maximizes the stakeholder interest by potentially valuing their needs. In the sense of corporate social responsibility, by complying with the guidelines that exceed the stakeholder's desire, CSR translates the organization's ecological obligation into the firm's ethical performance. Given the statement, the research shows that CSR practices have optimistically enhanced organizational performance (Olya & Akhshik, 2019).

Moreover, several studies constitute a prominent view of CSR on OP (Latif et al., 2020) by confirming the positive influence of CSR on organizational performance (Ling, 2019). This inherent relationship illustrates that socially responsible companies bring economic benefits for the organizations, thus strengthening the relationship between CSR and OP (Khan et al., 2019). Thus, the literature shows that corporate social responsibility is an effective mechanism, proficiently leading organizations to achieve superior performance (Lu et al., 2020). Consequently, the previous literature develops the following hypothesis

*Hypothesis 1:* Corporate Social Responsibility has a positive and significant impact on Organizational Performance.

### **Green product innovation and organizational performance**

With the rapid development in the global economy, the issues related to the environment have become a bottleneck in achieving sustainable development. For easing the

conflict between economic and environmental issues, ecological sustainability standards have extended the acknowledgment of new products with greener characteristics (i.e., green product innovation). Green product innovation modifies the product design by embracing environmental-friendly practices, thus minimizing the effect of the environmental burden on firms' operations.

Green product innovation alludes to a firm's endeavors towards the development of eco-friendly initiatives. It refers to an organization's attempt to play down the impact of environmental damages (e.g., pollution emission, hazardous waste emission) while expanding the utilization of productive energy resources (e.g., waste recycling), fundamentally improving the organizational performance (Semana et al., 2018). In explanation, research demonstrates that green product innovation accelerates the firm's performance by accomplishing the ecological performance goals (Tang et al., 2018).

Hence, in recent years, the demand for environmental assurance has increased the public interest in green production. Under this increasing environmental consideration, numerous organizations are configuring green practices for reducing the effect of ecological damages in the shape of green innovation (Junior et al., 2018). Such practices have empowered the organization to embrace green product innovation as a strategic concept for expediting organizational performance (Tang et al., 2018).

Perhaps, enhanced environmental performance is a pivotal factor in achieving long-term sustainable development. The going green movement has allowed the firms to develop green competencies, thereby advancing the overall firms' performance (Wang et al., 2021). The evolution of green business has cultivated green ideas into green performance. The study shows that adopting green production strategies enhances the organization's atmosphere by complying with the environmental standards of product innovation that improves green product performance (Song et al., 2020). Therefore, the result shows that eco-innovation seeks to boost the organizations' performance by achieving the highest level of the company's performance (Ch'ng et al., 2021). Indeed, the previous literature concludes

*Hypothesis 2: Green Product Innovation has a positive and significant impact on Organizational Performance.*

### ***The relationship between competitive advantage, corporate social responsibility, and green product innovation***

Today, firms have learned to incorporate new business practices (i.e., eco-friendly) by gaining market prominence in competitive environments. Integrating new business strategies with CSR initiatives make the companies meet the demand of the competitive world (Almeida & Coelho, 2019), thereby gaining a unique advantage. In the light of RBV, the firm characterizes the resource capability as a vital tool for sustaining performance, subsequently picking up a competitive edge over the other (Barney, 1991). Correspondingly, results show that CSR actions stimulate the advancement of unique assets, driving the firm to get a long-lasting competitive benefit (Valdiansyah & Augustine, 2021).

Corporate social responsibility is viewed as a significant idea by corporations, fulfilling the responsibility of the stakeholders, including the employees, customers, and

community. Study shows that CSR practices result in obtaining enduring growth in the shape of sustainable competitive advantage (Han et al., 2019). Organizations create a competitive advantage to establish a symbolic relationship with the firm's stakeholders. In explaining this notion, the study indicates that CSR is an instrumental tool valuing the needs of the stakeholders, thereby improving the organizations' (i.e., SMEs') competitiveness (Nadanyiova, 2021).

Undoubtedly, sustainability shapes the premise of competitive advantage allowing the organization to compete within the competitive spheres. The differentiation viewpoint of the RBV permits the firms to pick up a competitive benefit over the other firms. The strategic CSR activities add value for the business and the society by gaining a long-term competitive advantage. CSR, recognized as a critical source of creating a differential edge. CSR efforts provide a unique point of differentiation for businesses, appreciating the firm to build up distinct resource capabilities, leading them to achieve an enduring competitive advantage (Banerjee et al., 2018). Hence, literature infers that corporate social responsibility lays a strong foundation for organizational performance and firm competitiveness.

Significantly, from the demand side, the abrupt shifting of preferences to eco-friendly products has encouraged the organizations to control the environmental impacts of production activities, thus minimizing the ecological damages. However, these environmental concerns have compelled the organizations to boost product innovation by formulating a distinct positioning, subsequently gaining a differential edge (Skordoulis et al., 2020).

Value creation is a prominent factor driving the firm's innovation process. A company's innovative capability is an organizational asset, manifesting the firm's performance, thereby gaining a unique competitive. Indeed, the growing concern of value addition had rapidly transformed the business landscape, making the firms adopt the concept of green product innovation for improving the firm's performance (Ma et al., 2018). Consistently, the research shows that GPI creates an enduring competitive advantage (Demirel & Kesidou, 2019), thereby improving the firms' performance.

Green product innovation leads the companies to provide eco-friendly products, facilitating the businesses to grasp green opportunities while achieving competitive advantage in the emerging markets. Given the explanation, research shows that eco-innovation increases the competitiveness of SMEs by potentially overcoming the negative impact of the environmental vulnerabilities with the positive effect on global society (Ifrim et al., 2018). Hence, the study indicates that green product innovation is positively related to competitive advantage (Al-Abdallah & Al-Salim, 2021). Therefore, based on the previous findings, the hypothesis developed is as follows

*Hypothesis 3:* Corporate Social Responsibility has a positive and significant impact on Competitive Advantage.

*Hypothesis 4:* Green Product Innovation has a positive and significant impact on Competitive Advantage.

### **The mediating role of competitive advantage**

Competitive advantage, defined as the differentiation strategy, ensures the implementation of CSR practices for delivering superior organizational performance. CSR

initiatives dramatically contribute towards strengthening the firm's competitiveness, forming uniqueness as the basis of differentiating the firm from its competitors. Corporate social responsibility plays a strategic role in establishing sustainable competition, optimistically adding to firms' (i.e., SMEs) performance (Thanh et al., 2021). The CSR practices merged with competitive advantage enhance the organizational performance in developing economies such as Pakistan (Anwar, 2018). In today's emerging markets, the increasing responsibility practices (i.e., CSR) improve the firm's performance through forming sustainable competing advantage (Maletič et al., 2018).

The environmentally friendly initiatives support the resource-based review concerning the stakeholders' engagement. The results confirm the significance of CSR capabilities as a driver of achieving competitive advantage ultimately, advancing the firm's performance (Ayuso & Navarrete-Báez, 2018). In addition, the research shows that CSR activities value the stakeholders' interest, fundamentally driving the sustainable competitive advantage to increase the firm's economic performance (Anbarasan & Sushil, 2018). Moreover, the study states that organizational performance is the product of sustainable advantage (Kaur et al., 2019), where the CSR approach makes CA mediate the relationship between the variables (i.e., CSR and OP), thereby recording an increase in firms' overall performance (Kim et al., 2018).

Additionally, ever since environmental sustainability has come into play, organizational innovation has encouraged the development of sustainable products (Hofman et al., 2020). Sustainable competitive advantage is the heart of innovation strategy that positively influences the firms' competitiveness. The differential advantage is the pioneer of green product innovation strategy, improving organizational performance by integrating the concept of resource-based capabilities (i.e., RBV). Given the statement, research shows that green product innovation triggers the competitive advantage, positively advancing the firm's growth and performance (Khan et al., 2019).

Fundamentally, the study shows that green product innovation leads the firm to experience a superior competitive advantage (Xie et al., 2019) while achieving the firm's sustainable performance (Qiu et al., 2020). Similarly, academic work suggests that green product innovation directly reinforces green competitive advantage (Zameer et al., 2020). But this role becomes stronger when this desired relationship extensively influences the firm sustainable performance (Famiyeh et al., 2018). Consequently, based on the previous findings, the hypothesis proposes

*Hypothesis 5a:* Competitive Advantage mediates the relationship between Corporate Social Responsibility and Organizational Performance.

*Hypothesis 5b:* Competitive Advantage mediates the relationship between Green Product Innovation and Organizational Performance.

### **The moderating role of green trust**

Trust refers to a person's belief in other words and promises, driving the individual purchase intention. The green trust in green production alludes to an individual's certainty in those products that improve environmental performance (Foroudi et al., 2020). The increased level of trust in green products gives the consumers a sense of reliability, thus advancing the organizational performance.



Research shows that green consumers favor green products over others. The green trust provides the consumer with meaningful information regarding environmental safety (Hameed & Waris, 2018). The enhanced Green Trust strengthens the consumer willingness to purchase a product while reducing the perceived risk attached to the product features. This green trust allows the company to win green consumers by focusing on green considerations, thus making the companies gain a distinct advantage based on the innovative product offering (Al-Majali & Tarabieh, 2020), improving the firm's performance (Lee, 2020).

Perhaps, due to the increasing role of green trust in the consumer buying decision, numerous firms have started to integrate the terms green and eco in their production processes. Eco-label products are the essential source of communicating the environmental safety and benefits information to the consumers (Long et al., 2020). The eco-product labels provide information to the consumer regarding the product characteristics (Canavari & Coderoni, 2019). Many companies claim the greenery of the product, but in reality, the results are the opposite. Green claims need to be reliable and trustworthy to acquire consumer trust. The product claimed to be proficient and environmentally friendly gains the consumers' confidence while increasing the likelihood of a consumer favouring the green product over the other commodities. In such cases, ecolabels provoke the organization to achieve green trust (Musgrove et al., 2018) subsequently, increasing the firms' green performance. Green Trust plays a vital role in consumer buying intention. The Green Trust increases the value of organic production, facilitating the firm green performance (Li et al., 2021). Consequently, the hypothesis states

*Hypothesis 6:* Green Trust significantly moderates the relationship between Green Product Innovation and Organizational Performance.

## **Methodology**

### **Data collection**

The study adopted the questionnaire survey to analyse the data quantitatively. The target population of this study is manufacturing enterprises of Pakistan. The sample of top Management collected the data from manufacturing companies. The judgmental sampling used in this study chose the specific top managers of manufacturing companies. The distributed Questionnaires are 400, and 310 Questionnaires are returned but valid questionnaires are 259 with 64.75%. The respondents were assured that all answers were truthful.

### **Measurement scale**

The study used the questionnaire survey with a five-point Likert scale from strongly agree =5 to strongly disagree = 1 to measure the item. The study investigated the variables (Corporate social responsibility, Green product innovation, Competitive advantage and organizational performance). The study also investigates the mediating role of Competitive advantage between Green product innovation organizational performance. Further, the moderating role of Green trust investigates between green product innovation and organizational performance. The study adopted the

measurement scale of Corporate social responsibility by (Farooq et al., 2014; Turker, 2009). The measurement scale of Green product innovation is adopted by (Chang, 2019; Chen, 2008). The Competitive advantage is measured with the adopted scale by (Barney, 1991; Chang, 2019). Organizational performance is measured by the adopted scale of (Deshpandé et al., 1993; Drew, 1997). Additionally, the measurement scale of green trust is adopted by (Chen, 2010).

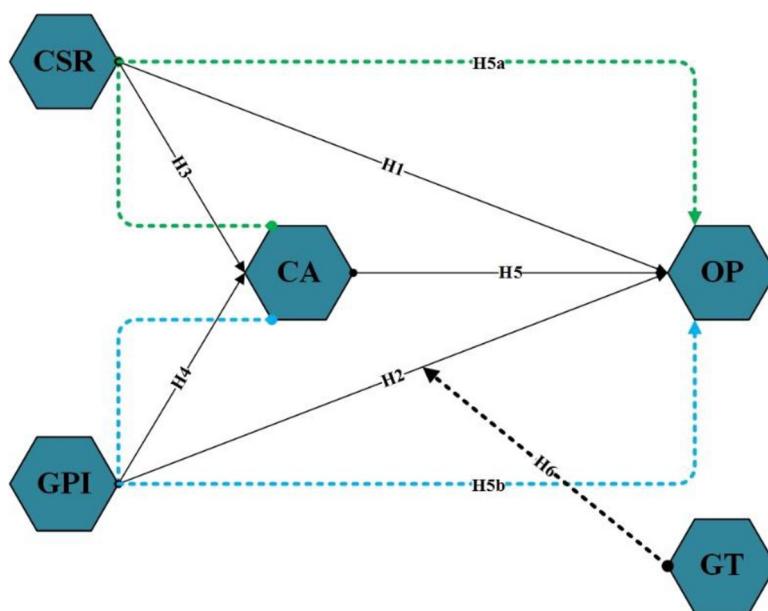
## Results

Table 1 indicates the demonstration of Demographic Characteristics. In the gender section male, are 58.3%, and the female are 41.7%, while the married respondents are 83.8% and single respondents are 16.2%. In the age section, the respondents between the age of 19–30 are 5.8%, the age of 31–40 are 30.9%, age between 41–50 are 24.3, the age between 51–60 are 29%, and more than 60 are 10%. In education, respondents at the intermediate level are 18.5%, Bachelor level 30.9%, Master level 40.5%, and MPhil/Others are 10%. Further, the respondents are 3.5% with account position in the organization. First Line Managers are 2.3%, Middle-Level Managers are 39.4, Senior Level Managers are 44.8%, and Executive Level members are 10%. Respondents are 4.6% who have a salary range between 25000–50000, the range of salary 50001–75000 are 4.2%, 75001–100000 are 54.4 and more than 100000 with 36.7% respondents (Figure 1).

**Table 1.** Demographic characteristics.

<i>Items</i>	<i>Frequency (N = 259)</i>	<i>(%)</i>
<b>Gender</b>		
Male	151	58.3
Female	108	41.7
<b>Marital Status</b>		
Single	42	16.2
Married	217	83.8
<b>Age</b>		
19–30	15	5.8
31–40	80	30.9
41–50	63	24.3
51–60	75	29
>60	26	10
<b>Education</b>		
Intermediate	48	18.5
Bachelor	80	30.9
Master	105	40.5
MPhil/Others	26	10
<b>Position</b>		
accountant	9	3.5
First Line Manager	6	2.3
Middle Level Manager	102	39.4
Senior Level Manager	116	44.8
Executive Level	26	10
<b>Salary</b>		
25000–50000	12	4.6
50001–75000	11	4.2
75001–100000	141	54.4
>100000	95	36.7

Source: Authors' calculation.



**Figure 1.** Conceptual framework.

Note: Corporate Social Responsibility (CSR), Green Product Innovation (GPI), Competitive Advantage (CA), Green Trust (GT), Organizational Performance (OP).

Source: Authors' calculation.

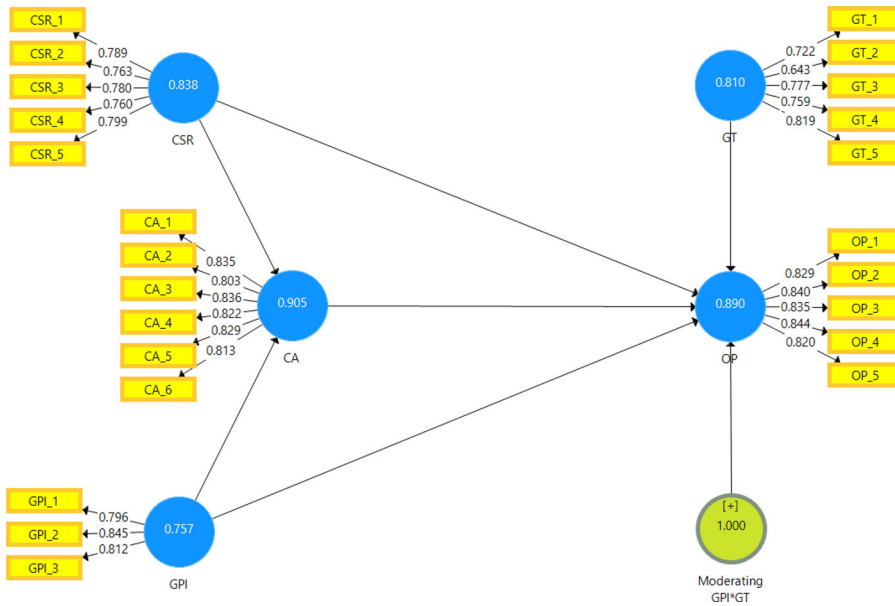
**Table 2.** Reliability & validity analysis.

Construct	Items	Loading	$\alpha$	CR	AVE
Corporate social responsibility	CSR_1	0.789	0.838	0.885	0.606
	CSR_2	0.763			
	CSR_3	0.780			
	CSR_4	0.760			
	CSR_5	0.799			
Green product innovation	GPI_1	0.796	0.757	0.858	0.668
	GPI_2	0.845			
	GPI_3	0.812			
Competitive advantage	CA_1	0.835	0.905	0.926	0.677
	CA_2	0.803			
	CA_3	0.836			
	CA_4	0.822			
	CA_5	0.829			
	CA_6	0.813			
Green trust	GT_1	0.722	0.810	0.862	0.557
	GT_2	0.643			
	GT_3	0.777			
	GT_4	0.759			
	GT_5	0.819			
Organizational performance	JP_1	0.829	0.890	0.919	0.695
	JP_2	0.840			
	JP_3	0.835			
	JP_4	0.844			
	JP_5	0.820			

Source: Authors' calculation.

### Assessment of measurement model

In Table 2, the internal consistency is a measure to ensure the homogenous nature of items under a specific construct (Cooper & Schindler, 2014). This is tested by



**Figure 2.** Graphical representation of measurement model assessment.  
Source: Authors' calculation.

**Table 3.** Discriminant validity analysis (Fornel Larcker).

Constructs	1	2	3	4	5
1.CA	<b>0.823</b>				
2.CSR	0.357	<b>0.778</b>			
3.GPI	0.321	-0.171	<b>0.818</b>		
4.GT	-0.156	-0.104	0.105	<b>0.746</b>	
5.OP	0.645	0.396	0.364	-0.142	<b>0.834</b>

Note: Values on the diagonal (italicized) represent the square root of the average variance extracted, while the off diagonals are correlations.

Source: Authors' calculation.

composite reliability to measure the internal consistency of items. The adequate criteria of composite reliability are 0.6 to 0.9, its minimum threshold value. The satisfactory value of composite reliability is between 0.7 to 0.9 (Sarstedt et al., 2017). However, in this study, composite reliability values are 0.858 to 0.926, ensuring the inter-correlation consistency of items. Another test of internal consistency is Cronbach's alpha (Tavakol & Dennick, 2011). Cronbach's alpha value should be between 0.6 to 0.95 (Ursachi et al., 2015). In this study, the Cronbach's alpha values between 0.757 to 0.905 meet the threshold value. The convergent validity ensures how the new scale is related to other variables and the measurement of the same construct. This study used the average variance extracted to measure the convergent value. The AVE threshold should be higher than 0.5, showing an adequate level of convergence (Bagozzi & Yi, 1988). In this study, the AVE value of each construct is higher than 0.5. Figure 2 shows the graphical representation of measurement model assessment.

The discriminant validity is measuring each construct is different from other variables (Hair et al., 2013). There are three criteria cross-loadings, Fornell-Larcker criterion, and HTMT criteria (Sarstedt et al., 2017). In Table 3, the Fornell-Larcker

**Table 4.** Discriminant validity analysis (cross-loadings).

Constructs items	CA	CSR	GPI	GT	OP
CA_1	<b>0.835</b>	0.313	0.287	-0.137	0.549
CA_2	<b>0.803</b>	0.336	0.235	-0.114	0.490
CA_3	<b>0.836</b>	0.263	0.266	-0.149	0.515
CA_4	<b>0.822</b>	0.310	0.279	-0.087	0.556
CA_5	<b>0.829</b>	0.244	0.252	-0.149	0.527
CA_6	<b>0.813</b>	0.296	0.262	-0.139	0.541
CSR_1	0.301	<b>0.789</b>	-0.165	-0.081	0.286
CSR_2	0.306	<b>0.763</b>	-0.148	-0.097	0.304
CSR_3	0.221	<b>0.780</b>	-0.108	-0.036	0.284
CSR_4	0.299	<b>0.760</b>	-0.092	-0.111	0.330
CSR_5	0.253	<b>0.799</b>	-0.151	-0.069	0.331
GPI_1	0.221	-0.197	<b>0.796</b>	0.072	0.222
GPI_2	0.293	-0.097	<b>0.845</b>	0.083	0.368
GPI_3	0.262	-0.147	<b>0.812</b>	0.101	0.276
GT_1	-0.114	-0.161	0.146	<b>0.722</b>	-0.085
GT_2	-0.081	-0.043	0.156	<b>0.643</b>	-0.038
GT_3	-0.174	-0.092	0.036	<b>0.777</b>	-0.111
GT_4	-0.089	-0.057	0.069	<b>0.759</b>	-0.105
GT_5	-0.114	-0.047	0.063	<b>0.819</b>	-0.143
OP_1	0.514	0.304	0.268	-0.024	<b>0.829</b>
OP_2	0.559	0.311	0.311	-0.113	<b>0.840</b>
OP_3	0.540	0.303	0.323	-0.126	<b>0.835</b>
OP_4	0.555	0.346	0.333	-0.128	<b>0.844</b>
OP_5	0.516	0.382	0.278	-0.192	<b>0.820</b>

Source: Authors' calculation.

**Table 5.** Discriminant validity analysis (HTMT).

Constructs	1	2	3	4	5
CA					
CSR	0.406				
GPI	0.380	0.225			
GT	0.179	0.132	0.161		
OP	0.716	0.456	0.428	0.153	

Source: Authors' calculation.

criterion shows that loading items' value should be higher than their constructs (Chin, 1998). This study measured the discriminant validity by the Fornell-Larcker criterion in which the value of CA is 0.823, the value of CSR is 0.778, the value of GPI is 0.818, GT value is 0.746, and OP value is 0.834. The study indicates that the values of loading items are higher than their constructs, ensuring that discriminant validity is well established.

In Table 4, the assessment of cross-loading is another approach to measure the discriminant validity, which is also called the items level discriminant validity. The assessment of Cross loading found when variables are hard to distinguish with those factors that had a similar representation and same concept (Henseler et al., 2015); if the value of cross-loading items should be less than 0.5, those values try to remove. In this study, cross-loading items considered that is higher than 0.5.

In Table 5, discriminant validity analysis was measured by the Heterotrait-mono-trait ratio of correlations (HTMT) (Henseler et al., 2015). HTMT threshold value is less than 0.85; HTMT is a measure of the relation between similar latent constructs. If the HTMT value is smaller than 0.5 indicate, the discriminant validity is well established. HTMT is the favourable classification performance (Voorhees et al., 2016), study meets the criteria of HTMT threshold value.

**Table 6.** Hypotheses testing direct effect.

Hypothesis	Direct Relationships	Std. Beta	Std. Error	T Values	P Values
H1	CSR→OP	0.296	0.060	4.906	***
H2	GPI→OP	0.302	0.053	5.747	***
H3	CSR→CA	0.425	0.056	7.598	***
H4	GPI→CA	0.394	0.061	6.406	***
H5	CA→OP	0.411	0.063	6.507	***
H6	Interaction GPI*GT→OP	0.117	0.033	3.511	***

Source: Authors' calculation.

**Table 7.** Hypotheses testing mediation effect.

Hypothesis	Mediation/Indirect Relationships	Std. Beta	Std. Error	T Values	P Values
H5a	CSR→CA→OP	0.175	0.038	4.563	***
H5b	GPI→CA→OP	0.162	0.039	4.188	***

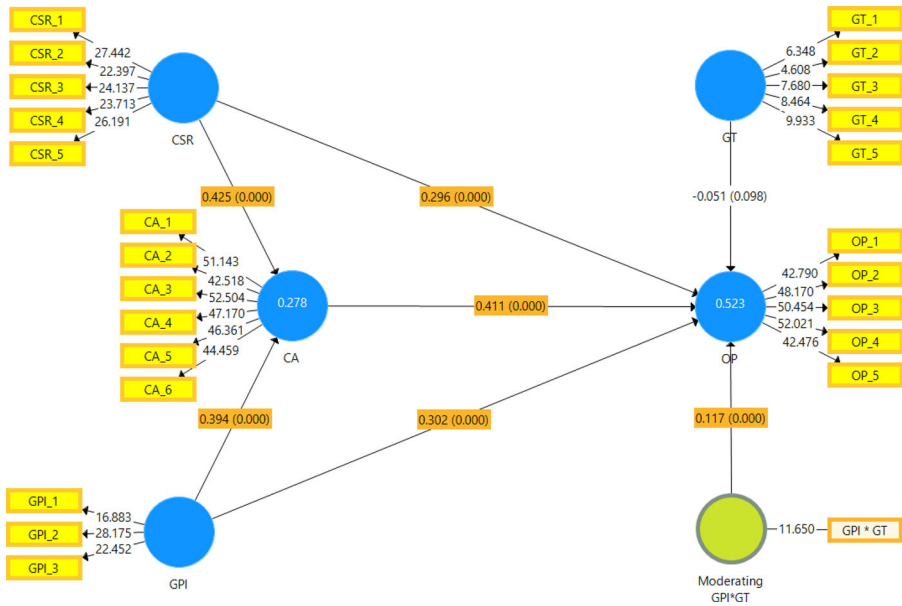
\*Indicates significant paths:  $*p < 0.05$ ,  $**p < 0.01$ ,  $***p < 0.001$ , NS = not significant.

Source: Authors' calculation.

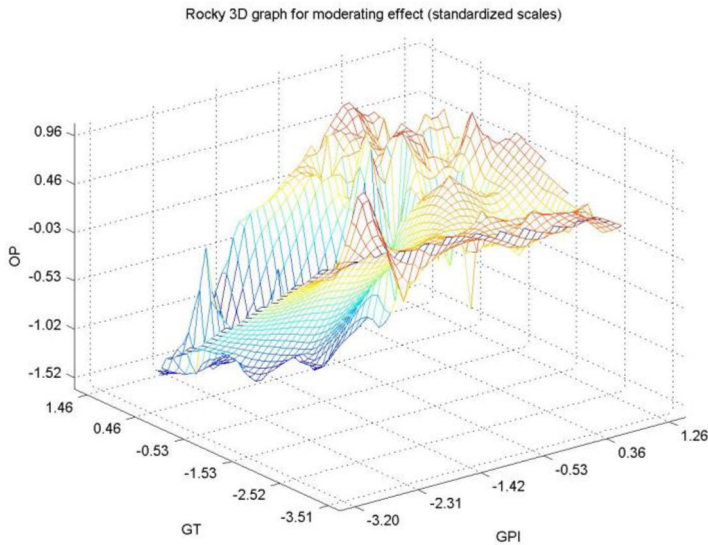
### Structural model

The study's proposed hypotheses (H1) are that Corporate social responsibility has a positive and significant impact on organizational performance. The results show a positive and significant relationship between Corporate social responsibility and organizational performance ( $\beta = 0.296$ ,  $p < 0.000$ ), the hypothesis H1 is supported in this study. The hypothesis H2 is Green product innovation has a positive and significant impact on organizational performance. The results indicate ( $\beta = 0.302$ ,  $p < 0.000$ ) that there is a positive and significant association between Green product innovation and organizational performance, the hypothesis H2 is accepted. Hypotheses H3 proposed that Corporate social responsibility has a positive and significant impact on competitive advantage. The results show ( $\beta = 0.425$ ,  $p < 0.000$ ) that Corporate social responsibility is significantly and positively associated with a competitive advantage, in this study, the proposed hypotheses are accepted. The proposed Hypotheses H4 that Green product innovation has a positive and significant impact on competitive advantage. The results show ( $\beta = 0.394$ ,  $p < 0.000$ ) a positive and significant association between Green product innovation and competitive advantage, therefore, H4 is accepted. The hypothesis H5 is Competitive advantage has a positive and significant impact on organizational performance. Based on the results ( $\beta = 0.411$ ,  $p < 0.000$ ), this study discovered a positive and significant relation between Competitive advantage and organizational performance. However, H5 is accepted. Further, hypothesis H6 is Green trust moderates the positive relationship between green product innovation and organizational performance. The study results show ( $\beta = 0.117$ ,  $p < 0.000$ ) that Green trust significantly moderates the relationship between green product innovation and organizational performance, however, hypothesis H6 is accepted (Table 6).

Table 7 indicates the mediating relationship between constructs. The hypothesis H5a reveals that Competitive advantage mediates the relationship between corporate social responsibility and organizational performance. The study's results show ( $\beta = 0.175$ ,  $p < 0.000$ ) that Competitive advantage significantly mediates between

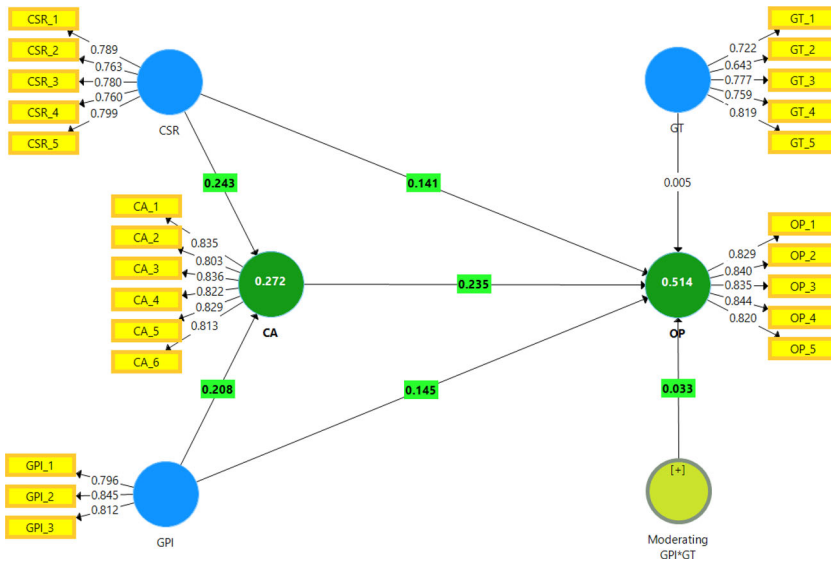


**Figure 3.** Graphical representation of the structural model.  
Source: Authors' calculation.

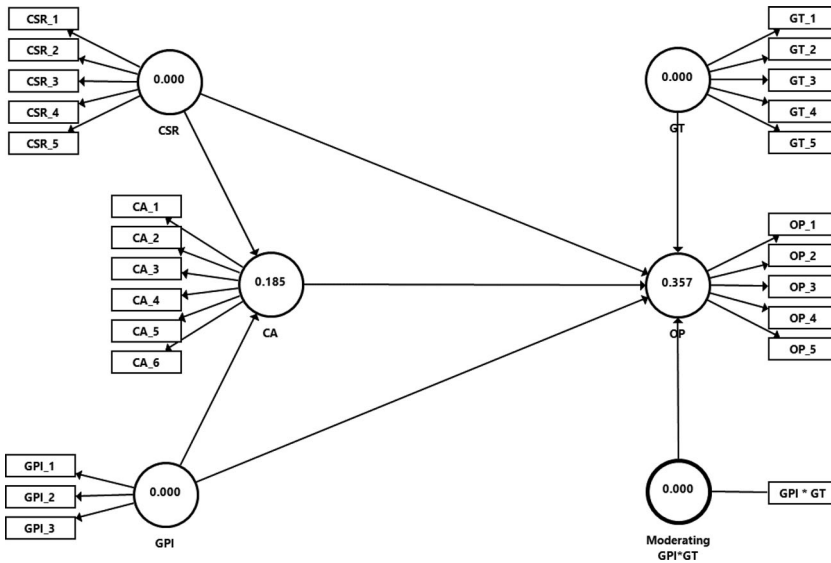


**Figure 4.** Demonstration of interaction effect in 3D (GPI\*GT).  
Source: Authors' calculation.

corporate social responsibility and organizational performance. Therefore, hypothesis H5a is accepted. Further, the H5b is Competitive advantage mediates the relationship between green product innovation and organizational performance. The findings of this study ( $\beta = 0.162, p < 0.000$ ) indicate that Competitive advantage significantly mediates green product innovation and organizational performance. Therefore, hypothesis H5b is accepted. However, Figure 3 indicates the graphical representation of the structural model, and Figure 4 demonstrates the in-3D interaction effect of GPI\*GT).



**Figure 5.** Graphical representation of  $R^2$  &  $F^2$ .  
Source: Authors' calculation.



**Figure 6.** Graphical representation of  $Q^2$ .  
Source: Authors' calculation.

**Quality criteria**

Figures 5 and 6 show the values of adjusted  $R^2$ ,  $Q^2$ , and  $F^2$ . The study measured the coefficient of determination by  $R^2$  value. It shows the variance of a dependent variable because of the predictors variable of the study (Hair et al., 2021). The acceptable value of  $R^2$  is 0 to 1. In this study, the  $R^2$  of CA is 0.272, and the value of OP is 0.514, which ensures the model's predictive validity. The study measures the effect size by ( $f^2$ ) that ensures a continuous relationship between independent and



dependent variables with a multiple regression model (Cohen, 1988). The value of ( $f^2$ ) in the range of ( $\geq 0.02$  is small;  $\geq 0.15$  is medium;  $\geq 0.35$  is large), this study shows the significant effect size between construct. The study is measured the predictive relevance ( $Q^2$ ) as another criterion. The  $Q^2$  indicates the predictive relevance in the structural model by the Stone–Geisser criterion. The value of  $Q^2$  should not be more than zero (Hair et al., 2013). In this study, the value  $Q^2$  of CA is 0.185, and the value of OP is 0.357, which confirms the model's predictive relevance. Therefore, Figure 6 displays the values of adjusted  $R^2$ ,  $Q^2$ , and Figure 6 show the  $Q^2$  values in the model.

## Conclusion

In this competitive era, organizations have embraced efficient marketing tools, emphasizing the importance of corporate social responsibility as a core business strategy driving the business functions (Maqbool & Zameer, 2018). Considering the significance of environmental safety, organizations are drastically transferring their business operations towards green operations (Khan et al., 2018).

Based on Findings, this study concludes a positive and significant relationship between corporate social responsibility, green product innovation and organizational performance. The results show that corporate social responsibility is significantly and positively associated with a competitive advantage. Further, green product innovation has a positive and significant association between Green product innovation and competitive advantage. This study also discovered a positive and significant relation between Competitive advantage and organizational performance. The study results show that Green trust significantly moderates the relationship between green product innovation and organizational performance.

The study's results show that Competitive advantage significantly mediates between corporate social responsibility and organizational performance. The findings of this study indicate that Competitive advantage significantly mediates green product innovation and organizational performance.

In terms of practical and theoretical implications, this study contributes to the literature on organizational performance and corporate social responsibility by arguing the green product innovation and green trust that will impact the firm's core business and the customer's values in a competitive market. Prior studies have focused on the organisational performance in the perception of CSR, green product and green product innovation according to competitive advantage and business market values.

## Disclosure statement

No potential conflict of interest was reported by the authors.

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