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Research Article

Corporate Environmental Ethics: Catalyst for Green Innovation and Business Performance in Pakistan's Healthcare Manufacturing Sector

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Declaration of interests

The authors declare no financial or personal conflicts of interest.

Abstract

This empirical study investigates the intricate relationships between corporate environmental ethics, green innovation, and business performance within Pakistan's healthcare manufacturing sector. Utilizing survey data from 30 manufacturing firms, the research examines how green innovation impacts financial and environmental performance, with a specific focus on the mediating role of corporate environmental ethics. Furthermore, the study explores the moderating influence of environmental uncertainty on the relationship between green innovation and success in economic and environmental domains. Results indicate that robust corporate environmental ethics significantly enhance environmental performance, while green innovation coupled with such ethics contributes positively to economic performance. Moreover, environmental uncertainty moderates the effects of green innovation on both economic and environmental performance outcomes. These findings offer valuable insights for decision-makers aiming to navigate the complexities of sustainable business practices, particularly within the context of Pakistan's healthcare manufacturing sector.

Keywords: Corporate Environmental Ethics, Green Innovation, Environmental Uncertainty.

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1 INTRODUCTION

Sustainable development and environmental degradation are major global problems (Abreu et al., 2015). According to traditional economic theory, environmental management investments add transaction costs and burden and harm economic performance, according to traditional economic theory (Adomako & Tran, 2022). Lately, studies have shown that green innovation can enhance a firm's ability to differentiate products, performance, and competitive edge (Acioli et al., 2021; Appannan et al., 2023; Cai & Li, 2018; Carballo-Penela & Castromán-Diz, 2015). Nations experiencing growing environmental degradation, but Group 77, consisting of Indonesia, China, the Philippines, Columbia, and 15 nations, are at risk. Pakistan is included on the list of environmentally vulnerable nations. Pakistan is subjected to several environmental problems, such as the deterioration of natural resources, exhaustion and contamination of renewable freshwater resources, use of pesticides, noise, air and solid waste pollution, soil degradation, desertification, biodiversity loss, and improper industrial waste discharge (Chaudhry & Amir, 2020). The pollution caused by mismanagement has become a significant environmental concern in Pakistan. Owing to rapid population growth, harmful environmental practices, and inefficient policies, natural resources, particularly freshwater resources, are under alarming pressure. Soil and water resources are perpetually contaminated by industrial ejection, and burning solid waste outdoors or on near-sea land produces carcinogenic pollutants harmful to health as well as dust (Carballo-Penela & Castromán-Diz, 2015; Chan et al., 2022). Serious environmental problems in Pakistan are the result of natural disasters such as floods, earthquakes, droughts, and cyclones. Pakistan is included in the row of nations that experienced flooding and storm damage. Cyclones significantly harm coastal regions and obliterate standing crops hundreds of kilometres inland (Chan et al., 2022).

Environmental issues due to climate change are anticipated to influence Pakistan's economy, causing a 6% GDP loss, and (Pakistan Strategic Environmental Assessment Report, 2006) drivers of green innovation from an institutional pressure perspective have been identified as environmental regulations, local communities, consumer demand, firm-university, and inter-firm cooperation (Cheng et al., 2019; Deslatte et al., 2023; El-Garaihy et al., 2024). Several studies have shown the importance of internal organizational determinants in green innovation in addition to these external and interfirm interaction antecedents (Hadj, 2020). A business's robust skills have a favorable impact on the organization's promotion of green innovation at the start of the diffusion stages (Horry et al., 2024). Corporate environmental ethics (CEE) integrates green beliefs and morals by developing environmental policies and integrating environmental know-how into decision making throughout the company (Horry et al., 2024).

Enterprises must follow environmental policies and have organizational support to execute green innovation, which is more ambiguous than regular innovation (Ikram et al., 2019). CEE is expected to impact green innovation. Moreover, embeddedness theory implies that businesses are comprised of social networks, and that these ties have an impact on how they behave economically(Granovetter, 1985). There haven't been many studies that have developed relevant theories or undertaken empirical research to support this relationship. There is still room for improvement according to different studies that have tested green innovation models with different variables. Research should examine the applicability of these results to other nations or scientific disciplines in various institutional environments and context (Hadj, 2020; Hart, 1995). According to one study, the relationship between corporate environmental ethics and performance is still ambiguous (Hummel et al., 2021). Mediating and moderating variables must be added to resolve these discrepancies and create a more comprehensive conceptual framework model. There is a dire need for research on the practical testing of this link or on the conditions that exist in developing nations such as Pakistan.

The resource-based view (RBV) theory and social network theory (SNT) are used to address these research gaps by examining the direct effects of green innovation on firms' economic and environmental performance, the mediating role of corporate environmental ethics, and the moderating effects of environmental uncertainty on the relationship between green innovation and economic and environmental performance. To test our conceptual model, we used survey information from 400 Pakistani manufacturing and healthcare firms. It connects green innovation to the inherent dynamics of enterprises, including the contingent roles of environmental uncertainty in the model. This study has several implications. For instance, by incorporating corporate environmental ethics, green innovation, and environmental and economic performance, which prior researchers have disregarded, this groundbreaking study creates a research framework (Islam et al., 2020; Jasch, 2003). Leaders can employ green innovation to improve economic and environmental performance by promoting corporate environmental ethics to overcome environmental uncertainty and by testing its mediation effect in the healthcare manufacturing industry in Pakistan, a developing nation.

2 LITERATURE REVIEW AND THEORETICAL BACKGROUND

Green innovation is "the advancement and formation of products (goods and services), processes, marketing tactics, organizational structure, and new or advanced institutional plots, which, intentionally or not, contribute to trimming down an environmental impact in contrast with alternative practices " by the Organization for Economic Co-operation and Development (OECD 2009). Hardware or software revolution that is linked with green products or processes, underlying the innovation in technologies that are inculpated in energy-saving, pollution-prevention, waste recycling, green product designs, or corporate environmental management (Islam et al., 2020), and "green innovation" refers to environmental goal-related actions, such as recycling waste material, saving energy, eco-friendly design, and pollution prevention. Governments have implemented measures to support green innovation, such as green brands and technologies, in exchange for global climate change and public concerns regarding environmental issues (Kua, 2016; Kumar et al., 2023; Le et al., 2019). Green innovation refers to an approach to resolving environmental degradation, increased green energy production, and increased energy effectiveness (Ikram et al., 2019; Islam et al., 2020), which can increase the effectiveness of consumed energy and encourage the use of additional renewable energies. Both are advantageous for improved environmental performance, encouraging people to create habitats that require less air pollution, which may encourage politicians to engage in more green innovation (Le et al., 2019). Green innovation programs are typically long-term, (Carrión-Flores and Innes, 2010) stressing that improved environmental performance frequently results in a company’s improved success in resolving environmental issues and fostering green innovation (Le et al., 2019)

According to this Resource based view theory, the resources and capabilities of a firm should be the key emphasis of its strategy because they are the main factors that determine a firm's strategic competitiveness. According to the RBV, not all resources and abilities are equally valued or identified; only those that are both valuable and unique can provide an advantage in a given market (Barney, 1991). To maintain a competitive edge over time, a company needs resources or talent that are distinct and challenging to replicate. A firm's resources can be divided into tangible resources, such as tangible assets, financial resources, human resources, and intangible resources, such as technology, reputation, and expertise, in accordance with RBV. A company might assess its resources and capabilities to determine areas where it may have a competitive edge, and then plan and implement strategies to take advantage of those competitive edges (Barney, 1991). The RBV framework emphasizes how differences in a firm's resource allocation can result in diverse corporate operations and performance. Along with real assets and skills, resources can also be intangible, such as corporate culture, which can have a significant impact on how well a company performs.

Green innovation can increase the value of a product, raise resource productivity, and elevate businesses (Mohamed & Jamil, 2020). The dynamic global environment is making environmental management increasingly crucial for businesses, and more businesses are preparing to invest more time and energy to create green solutions. Hence, creating green inventions is a win-win approach to resolving the tension between economic growth and environmental preservation. With the methodical integration and optimization of various resources and support for the growth of green innovation, CEE can increase green innovation capacity. Businesses that value the environment are more likely to invest in creating eco-friendly operations that may serve as a solid basis for green innovation (Massoud et al., 2010; Mathivathanan et al., 2022)

Corporate environmental ethics (CEE) are a crucial untapped resource for businesses seeking to achieve environmental objectives. It is a component of corporate culture that emphasizes environmental management and comprises a company's overall ethical convictions, values, and social norms about environmental issues. Ethics officers, codes, committees, training programs, communication platforms, and disciplinary processes are the six main parts of CEE. Enterprises can demonstrate that they value environmentally friendly manufacturing methods and technologies by formalizing their environmental values and behaviors through CEE (Horry et al., 2024). According Raza and Khan (2022), "green innovation" is a vital administrative scheme that reduces environmental pollution and waste. This calls for inventive and enhanced systems, practices, processes, and products that can reduce an organization's environmental burden (Sarkar et al., 2022). CEE increases the effectiveness of green innovation. Managers who place a higher prioritize the environment may adopt green innovation techniques under intense pressure from stakeholders. According to some academics, managers' attention to the environment may positively influence corporate management of environmental concerns in terms of speed and scope as well as improve firms' capacity to counter environmental issues, (Deslatte et al., 2023) thus enhancing the efficacy of green innovation.

Additionally, CEE enables businesses to integrate various industries by formalizing environmental schemes and enhancing green collaboration with dealers and rivals (Shahzad et al., 2020; Sharma & Aragón-Correa, 2005; Shubham et al., 2018). These actions significantly expand the range of green innovation, address environmental issues, remove barriers, and obtain sustainable benefits. Business environmental ethics is a company's ethical beliefs, values, and standards regarding environmental issues (Yan et al., 2022). Business environmental ethics comprises six items: ethics committees and the tension between company performance and environmental management, which can be resolved through green innovation (Hummel et al., 2021). Therefore, to keep up with environmental trends, businesses are increasingly ready to place a high prioritize improving environmental issues. Companies should improve the features of their products and services aligned with environmental standards to acquire a sustained competitive edge in the new environmental era, because the predominance of environmental concerns creates enormous commercial prospects for ethics officers and ethics training. Enterprises cannot overstate the value of the natural environment. To explain how environmental management affects many key features, a significant proportion of academics view business management from the natural environment (Sharma & Aragón-Correa, 2005; Steurer et al., 2005; Xuecheng et al., 2022; Zhong et al., 2023).

According to Zhong et al. (2023), the most important aspect of the corporate environment in which regulations, laws, and societal assumptions change is perceived environmental unpredictability. Managers believe that their company environment or one of its elements is an unforeseeable, environmentally unsure result (Zhou et al., 2024). Managers may be concerned about the path of emerging technologies, shifting societal norms and consumer preferences, and the viable effects of new regulations. Ambiguity may inspire a company to spend, make significant changes, and take on significant obligations to spot competitive possibilities. The type of environmental uncertainty that determines a manager's perception and managerial assessment of the part of the natural environment as a competitive edge (Hart, 1995). The information ambiguity method and resource dependence theory are the two most common viewpoints used in studies of organizations with environmental uncertainty in the field of strategy(Kreiser and Marino, 2002). To comprehend the managerial attitudes that influence corporate behavior, it is crucial to understand how managers perceive the environmental difficulties that their company is experiencing (Cordano & Frieze 2000). Environmental uncertainty, which emerges from the unpredictable actions of customers, suppliers, competitors, and regulatory bodies, is one of the key constraints that businesses must contend (Chaudhry & Amir, 2020). The study reveals that as managers have the freedom to adapt to their firm's environment, they exercise alternative methods when fronted with environmental unsurity. For example, managers may increase budgetary slack, align internal resources, and lessen dependency on incentive-based pay.

This study focuses on environmental uncertainty caused by variables outside an organization, arguing that because it is difficult for a firm to fully understand its business environment, there is environmental uncertainty in the firm (Elkington, 2001). The resource reliance argument or resource dependency theory indicates that the business environment is responsible for the scarce resources needed by a firm for survival (Rizzi et al., 2018; Rodrigue et al., 2013) experimenting with novel strategies. Managers assess the elevated pitch of environmental uncertainty and must take on significant risks when large sector barriers prevent the deployment of green initiatives, (Yulianti *et al.*, 1999) which can alter their current modes of thought, a process that makes managers important change agents. Owing to increasing environmental pressure, green innovation has emerged as a core strategy for achieving sustainable development in the manufacturing sector. Previously, it was unnecessary to spend money on environmental activities. However, severe environmental laws and widespread environmentalism have altered the rules of competition for firms that are enthusiastic about implementing green innovation and can benefit from distinction and low cost, which has the potential to alter the current competitive rules; thus, it is acknowledged that green management is successful today; ease less innovation, emerging market opportunities, and wealth generation are accelerated by being green (Zagloel et al., 2024). Green innovations may include environmental protection in the design and packaging of products to boost their benefits (Deslatte et al., 2023). Spending money on environmental management would not only prevent disapprovals and legal actions related to environmental conservation, but would also raise production efficiency, create new environmental markets, and boost their capacity for green innovation.

2.1 Role of Corporate Environmental Ethics

Firms may show their dedication to environmental sustainability and set themselves apart from competition by building and maintaining a strong CEE (Brulhart et al., 2019; Chen & Chang, 2013). This may result in improved productivity and performance, greater trust by stakeholders, and an enhanced reputation, leading to a sustainable competitive edge. According to Steurer et al. (2005), CEE is a crucial component of a firm's overall organizational

structure. CEE reflects a company's fundamental attitudes and ethical convictions towards the natural environment as opposed to specific green actions (Li et al., 2019; Liston-Heyes & Brust, 2016; Roxas & Coetzer, 2012). CEE, green innovation and its competitive benefits are catalyzed by forming a firm's values and expectations of ethical behavior. According to Huang and Li (2017), CEE, a component of corporate culture is required to achieve sustainable development. Based on earlier research, we describe CEE as a component of corporate culture that formalizes green values and ethics through environmental policies while integrating environmental awareness into decision-making. High environmental ethics standards enable businesses to not only avoid the problems associated with environmental protection demonstrations but also enhance their reputations (Chen & Chang, 2013; Chuang & Huang, 2018; Kapil & Rawal, 2023; Li et al., 2019); thus, environmental management may result in long-term financial rewards. According to previous studies, considering the above findings together, we formulate the following hypothesis:

H1. Corporate Environmental Ethics is positively associated with Economic performance.

H2. Corporate Environmental Ethics is positively associated with Environmental performance.

2.2 Mediation of Corporate environmental Ethics

Corporate environmental awareness is crucial for advancing green innovation because businesses that place high value on and are deeply concerned with the environment are more likely to devote more time, attention, or effort to doing so (Chen & Chang, 2013; Chuang & Huang, 2018; Huang & Li, 2017). Therefore, businesses with a robust CEE may include the work of various disciplines in environmental policies, and competitors may find it difficult to achieve equal levels. While a few studies have questioned the cointegration of these three variables, existing literature supports the influence of corporate environmental ethics on the link between green innovation and environmental and economic performance. Because environmental contamination has worsening externalities, green innovation is crucial for public management (Liston-Heyes & Brust, 2016; Shu et al., 2016; Steurer et al., 2005). According to previous research, corporate environmental ethics act as mediators between green relationship learning and green innovation performance. Corporate environmental ethics can assist businesses in enhancing their environmental management, while adhering to legal standards. Corporate environmental awareness is more common, forcing businesses to improve their environmental management. However, corporate environmental ethics do not naturally affect all businesses. It should be encouraged by the company's partners, including clients and suppliers, rival businesses, consultants, governmental bodies, academic institutions, market research firms, and sales representatives(Kapil & Rawal, 2023; Lannelongue et al., 2014) business environmental ethics can be developed through understanding green relationships. Moreover, companies have perspectives on environmental concepts that could be the cause of green innovation. Corporate environmental responsibility spurs green innovation and leads to performance programs, ethics communication systems, and disciplinary procedures (Abbas & Ul Hassan, 2017; Adomako et al., 2021; Adomako & Tran, 2022). To achieve sustainable development, corporate environmental ethics are recognized as an excellent corporate culture. Therefore, corporate environmental ethics can encourage proactive environmental activities that support green breakthrough. Previous studies have shown that businesses' well-defined policies and procedures have a favourable impact on their innovation (Ahmed et al., 2018; Al-Mawali et al., 2018; Ali et al., 2023a; Ali et al., 2023b; Alketbi & Ahmad, 2023) As a result, clearly defined environmental rules can streamline operations between various corporate divisions and address environmental issues. Corporate environmental ethics have highlighted the importance of proactive environmental management. An organization's environmental ethics can influence corporate operations and environmental technological innovation. We propose the following hypothesis based on the above literature:

H3. Corporate environmental ethics mediate the positive impact of green innovation on firms' economic and environmental performance.

2.3 Green innovation and performance

Green innovation can boost business performance financially. Companies can boost product value and achieve competitive advantage by replacing inefficient methods with upgraded processes, technologies, equipment, and products (Alketbi & Ahmad, 2023; Amir et al., 2023; Baah et al., 2021). According to the Ecological Modernization Theory of 2000, businesses can achieve both economic and environmental performance as well as a society that values the environment by embracing green innovation. Green innovations specifically boost economic success by increasing revenue and lowering costs. By developing innovative, environmentally friendly goods, procedures, and services, businesses can boost profits by addressing a variety of client needs (Feng et al., 2022) and projecting a green image(Chen *et al.*, 2006b). Green innovation boosts business market share and generates substantial financial gain (Cao & Chen, 2019; Chen & Chang, 2013; Chiou et al., 2011).Consequently, green innovation may be a useful tactic for generating

new commercial and increasing business revenue. from cost savings and cost reduction through recycling and saving resources. The question of whether green innovation is helpful in enhancing environmental performance constitutes a significant portion of the literature on the subject. Ibrahim and Mahmood (2022) examined whether the impact of green innovation on environmental performance is consistent among SME and large businesses, and concluded that big firms favor the preservation of the environment by fostering the green innovation process. Fabregat-Aibar et al. (2019) collected structural data from 244 large industrial enterprises in Malaysia to develop green innovations. To investigate the function of green innovation in environmental performance, structural equation modelling estimation was used. The results show that green innovation is a crucial medium through which green intellectual capital and human resource management may stimulate a finer environment. Researchers contend that the impact of various GI components on economic sustainability may range in strength (from stronger to weaker). However, several studies that examined GI's overall effects rather than just the effects of its separate components found a favorable correlation between GI and the economic, environmental, and social performance of corporate organizations (Li et al., 2022; Li et al., 2023; Malik et al., 2021; Mohamed & Jamil, 2020; Nassani et al., 2023; Ni et al., 2023; Rehman et al., 2022). This study proposes the following two hypotheses:

H4: green innovation is positively associated with economic performance.

H5: Green innovation is positively associated with Environmental performance.

Moderation of Environmental uncertainty:

These variables affect the variability of activities related to the organization's core operations and, as a result, the organization's output (e.g., sales). According to (Huang & Li, 2017; Iranmanesh et al., 2019), environmental uncertainty may affect variability in company performance. Ceteris paribus, an increasing variable in net sales implies increased profit. As a result, large fluctuations in unmanaged earnings are mirrored by high environmental uncertainty. Certainty and green innovation affect environmental and economic performance. According to Christmann (2000) as well as other researchers, environmental uncertainty influences different predictors of organizational performance and corporate leadership (Basu et al., 2019; Chen & Chang, 2013; Fabregat-Aibar et al., 2019; Gharib et al., 2022; Iranmanesh et al., 2019). CEOs' discretion may increase during times of environmental uncertainty because the perceived risk of firm failure is higher in unstable and uncertain environments. Thus, we propose the given below hypotheses:

H6. Environmental uncertainty positively moderates the effect of green innovation on economic performance.

H7. Environmental uncertainty moderates the effect of green innovation and environmental performance.

The main aim of this study is to investigate how green innovation boosts performance, a mediator of corporate environmental ethics, and to enhance the competitive edge and performance of businesses in terms of the economy and environment in the Pakistani manufacturing sector, Figure 1 presents the study model.

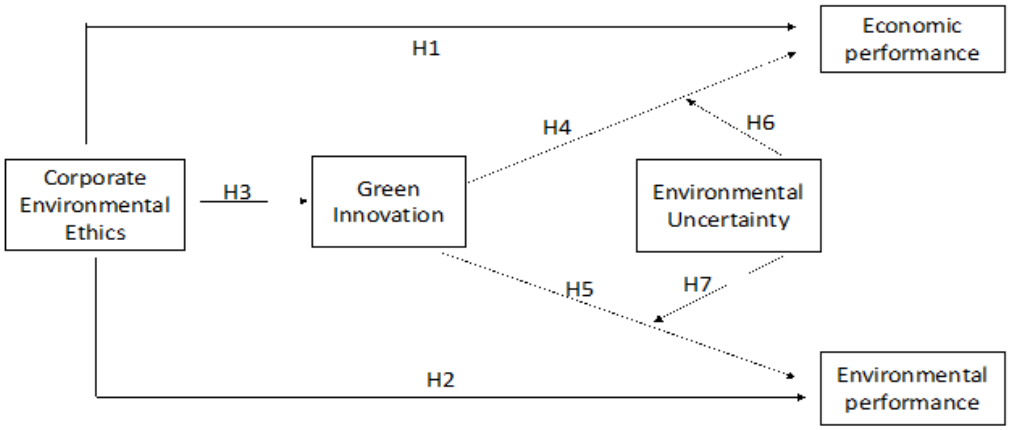

Figure 1. Research Model of the Study.

3 METHODOLOGY AND ANALYSIS

The questionnaire comprised six sections: enterprise characteristics (e.g., sector, year in which it was founded, and number of workers), CEE, green innovation, environmental uncertainty, environmental performance, and firm economic performance. Sector, Year in which it was founded, number of workers), CEE, green innovation, environmental uncertainty, environmental performance, and firm economic performance. To ensure validity and reliability, we built our questionnaire on authorized scales that fit the research setting. The questionnaire was written in the English language. Data on green innovation and other concepts in our conceptual model were gathered using the survey items. A 7-point Likert scale was used for all the core construct assessments. Environmental performance was measured using a five-item scale adapted from (Amir & Chaudhry, 2019). Green innovation is measured using eight items. Green product innovation was measured using four items and green process innovation was measured using four items (Huang & Li, 2017). The measurement of corporate environmental ethics includes four items (Chen & Chang, 2013). The environmental uncertainty was measured using the coefficient of variation approach suggested in(Bourgeois, 1985). We used ROA to gauge a firm's economic performance (Danso et al., 2020). These three factors influence green innovation and a company's economic and environmental performance.

3.1 Data Collection

From January 2023 to May 2023, we gathered information from four Pakistani provinces and cities. Thirty businesses were randomly chosen to represent a variety of industries, including the chemical, petrochemical, service, pharmaceutical, and medical sectors. Key informants know about the company's green innovation practices. This person is typically the president, vice president, green manager, or CEO. Before sending the questionnaires by mail, we contacted the managers via phone or email. Each questionnaire had a succinct preamble, outlining the study's goal and ensuring the privacy of the participants. Follow-up calls and mailings were sent out to increase the effective response rate. The completed questionnaires were delivered directly. A satisfactory response rate was achieved, with 419 of the 500 completed and acceptable surveys. Table 1 provides the descriptive statistics of the participating businesses and respondents. You can learn more about the gender distribution, educational background, age range, and years of experience of the group under consideration.

Table 3.1 Profile

Characteristics	N	%
Male	138	51.7%
Female	129	48.3%
Graduation	23	8.6%
Master	112	41.9%
Professional Diploma	100	37.5%
Others	32	12.0%
18 - 25	65	24.3%
26 - 32	79	29.6%
33 - 40	82	30.7%
40 +	41	15.4%
Less Than 2 Years	30	11.2%
2 to 4 years	163	61.0%
5 to 6 years	74	27.7%

The traits of the respondent and non-respondent firms were compared using t-tests. No discernible changes were observed in the outcomes. We also performed t-tests to assess the differences between early responses (219) and later responses (200). There were no discernible differences, indicating that non-response bias may not have been as prevalent as it may have been. Second, we used all independent and dependent variables to analyse the possible CMV based on Harman's single-factor test. As expected, the unrotated exam produced five distinct variables, with the highest score being 21.76%. Therefore, a single factor can't explain most of the variance. These findings revealed no significant risk of CMV infection.

3.2 Reliability and Validity

The reliability and validity of the six variables were assessed using measures of internal consistency, convergent validity, and discriminant validity. Exploratory and confirmatory factor analyses were conducted to establish the factor structure and the reliability of the measurement items. Reliability, internal consistency, convergent validity, indicator reliability, and discriminant validity were investigated (Hair et al., 2019) to demonstrate satisfactory reliability, with

Table 2. Loading and Convergent Validity

Items	Loading	Cronbach's alpha	CR	AVE
CEE1	0.836	0.906	0.907	0.780
CEE2	0.893			
CEE3	0.896			
CEE4	0.906			
ECP1	0.809	0.836	0.844	0.669
ECP2	0.808			
ECP3	0.824			
ECP4	0.829			
ENP1	0.708	0.863	0.867	0.650
ENP2	0.746			
ENP3	0.839			
ENP4	0.844			
ENP5	0.879			
EU1	0.750	0.888	0.896	0.640
EU2	0.838			
EU3	0.824			
EU4	0.814			
EU5	0.797			
EU6	0.772			
GIN1	0.500	0.740	0.775	0.511
GIN2	0.480			
GIN3	0.839			
GIN4	0.845			
GIN5	0.811			

Cronbach's alpha scores exceeding 0.740. Convergent validity was supported by adequate composite reliability (CR) and average variance extracted (AVE) values, indicating the reliability and validity of the measurement model. shown in Table 2.

3.3 Measurement Model

The method developed in (Florida & Davison, 2001; Fornell & Larcker, 1981) makes it easier for researchers to evaluate discriminant validity. They proposed that correlations between constructs should be assigned more weight than the correlations between other constructs. Discriminant validity is present when the square root values of AVE and the paired indicators have a stronger correlation. Additionally, the correlations between predictor variable pairs should be lower than 0.90 (Hair et al., 2012). Table 3 provides evidence of discriminant validity and satisfies the standards set by (Fornell and Larcker, 1981) and (Hair *et al.*, 2010) To test for discriminant validity, we used the Heterotrait-Monotrait (HTMT) ratio. In contrast to the Fornell-Larcker criterion, (Franke and Sarstedt, 2019) contended that the HTMT is a better estimator of the deattenuated (completely reliable) correlations between constructs.

Table 3. Discriminant validity (HTM and FL)

Constructs	CEE	ECP	EU	GIN	CEE	ECP	EU	GIN
CEE	-				0.883			
ECP	0.338	-			0.298	0.818		
ENP	0.830	0.156			0.734	0.129		
EU	0.507	0.325	-		0.458	0.288	0.800	
GIN	0.620	0.644	0.381	-	0.521	0.451	0.298	0.715

The testing of indicators for two constructs that measure various notions is referred to as discriminant validity. As a result, it was assumed that there would be little to no correlation between the two assessed constructs to demonstrate the difference. For each study variable, the ideal HTMT value should be at most 0.90 or 0.85. The results of this study's discriminant validity assessment met the necessary correlation values for the two construct assessments.

3.4 Hypotheses Testing and Discussion

According to H1 the coefficient is predicted to be 0.013. SD: The estimate's standard deviation is 0.088; t-statistic: Its value is 0.151; and p-value: The t-statistic's related p-value is 0.880. The p-value was higher than the

significance level, which is normally 0.05, and thus the hypothesis was not supported. CEE to ENP according to Hypothesis H2. The estimated path coefficient was 0.551, SD: the estimated standard deviation was 0.068, the estimated t-statistic value was 8.063, and the estimated p-value for the calculated t-statistic was 0.000. The p-value was below the level of significance and the hypothesis was supported. H4: The path coefficient of GIN→ ECP was predicted to be 0.381. The estimated standard deviation was 0.091. The p-value for the t-statistic is 0.000. The t-statistic had a value of 4.203. The p-value was below the level of significance and the hypothesis was supported.

Table 4. Hypothesis Testing (PLS-SEM)

Hypothesis	Path Direction	Estimate	SD	t-stat	p-value	Supported
H1	CEE -> ECP	0.013	0.088	0.151	0.880	No
H2	CEE -> ENP	0.551	0.068	8.063	0.000	Yes
H3	CEE -> GIN	0.521	0.049	10.583	0.000	Yes
-	CEE -> GIN -> ENP	0.152	0.036	4.264	0.000	Yes
-	CEE -> GIN -> ECP	0.199	0.053	3.772	0.000	Yes
H4	GIN -> ECP	0.381	0.091	4.203	0.000	Yes
H5	GIN -> ENP	0.292	0.058	5.076	0.000	Yes
H6	EU x GIN -> ECP	-0.043	0.060	0.719	0.472	No
H7	EU x GIN -> ENP	-0.094	0.033	2.879	0.004	Yes

H5: GIN → ENP, according to Hypothesis H5. were predicted to be 0.292. The estimate's standard deviation is 0.058; t-statistic: The t-statistic value is 5In conclusion, the table details the findings of the hypothesis testing for several PLS-SEM model routes. The "p-value" column establishes whether or not the hypothesis is supported, while the "Estimate" column displays the estimated path coefficients. According to the p-value, the "Supported" column indicates whether the hypothesis is supported (p 0.05) or not (p >= 0.05). CEE -> GIN -> ECP. The path coefficient is 0.199. The estimated standard deviation was 0.053. The t-statistic has a value of 3.772. The p-value for the t-statistic was set at 0.000.p-value is lower than the significance level, and the hypotheses were supported. According to Hypothesis H6, the path coefficient was predicted to be -0.043. The standard deviation of the estimate is 0.060, the t-statistic value is 0.719, and the p-value for the t-statistic is 0.472. The p-value indicates that the hypothesis is not supported because the p-value is greater than the significant value. This shows that environmental uncertainty has no mediating effect on the relationship between green innovation and economic performance. H7: EUxGIN leads to ENP -0.094 is the calculated route coefficient. The estimated standard deviation is 0.033. The result of the t-statistic is 2.879.p-value:0.004 is the p-value for the t-statistic. Hypothesis 7 is supported because the p-value is below the level of significance. Environmental uncertainty mediates the relationship between green innovation and environmental performance. .076; the p-value for the t-statistic is 0.000.p-value is below the level of significance, and the hypothesis is supported.

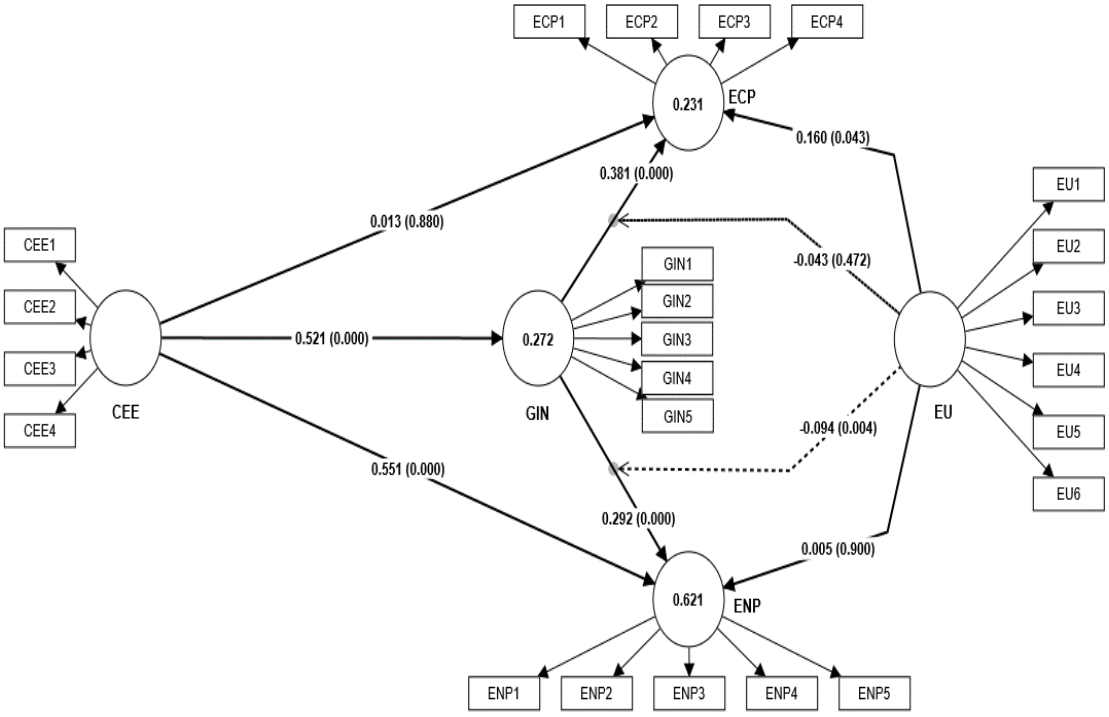

Figure 2. Structural Model

4 CONCLUSION

We find that corporate environmental ethics has no impact on economic performance. Furthermore, environmental uncertainty did not mediate the relationship between economic performance and green innovation. H1 and H6 were not supported; all hypotheses were accepted and had a direct positive link with each other. Corporate environmental ethics enhance environmental performance. Corporate environmental ethics mediate the relationship between economic performance and green innovation. Corporate environmental ethics also enhances the relationship between environmental performance and green innovation. Environmental uncertainty moderates the relationship between green innovation and economic performance.

In the context of Pakistan, this study evaluates a theoretical model linking Green Innovation to business economic and environmental performance through corporate environmental ethics. We analyze how green innovation improves business economic and environmental performance by encouraging corporate environmental ethics by drawing on a resource-based approach and social network theories. We then assess the moderating effects of various forms of environmental uncertainty on this relationship. The findings show that environmental uncertainty mediates the relationship between green innovation and business economics and environmental performance. We may provide references and suggestions for the optimization of Pakistan's green innovation and, to a certain degree.

4.1 Research Implications

This study contributes to the groundbreaking literature by illuminating the causality of green innovation among SMEs. Additionally, we found that green innovation affects a company's economic and environmental performance. By merging various theoretical viewpoints, this study provides a rigorous understanding of the connection between corporate environmental ethics, green innovation, and performance outcomes. As a result of this integration, theoretical frameworks for analyzing sustainability are improved and their applicability to the context of environmental performance in organizations is expanded, emphasizing how corporate environmental ethics mediate the relationship between green innovation and performance results. This study expands the knowledge on how ethical considerations affect the relationship between innovation and performance by highlighting the significance of ethical practices and ideals within organizations. This study adds to business ethics and sustainability by shedding light on how moral conduct might increase the effectiveness of green innovation and examining how environmental uncertainty affects the link between green innovation and performance. This discovery advances our knowledge of environmental contexts that affect the outcomes of green innovation projects. This study emphasizes the significance of adjusting innovation methods to address external obstacles and opportunities by considering the influence of environmental unpredictability. The intricate dynamics between innovation, environmental performance, and external environmental factors are better understood theoretically as a result of this realization. The primary area of interest in this study is Pakistan's burgeoning healthcare manufacturing industry.

This contextualization adds to the literature by illuminating the particular difficulties and opportunities for development in underdeveloped countries. This study broadens the theoretical understanding beyond developed economies and provides implications for the use of theoretical frameworks in various circumstances by examining the environment of a developing country. This study develops a paradigm for research that considers corporate environmental ethics; green innovation; and environmental, economic, and social performance. The research framework incorporates these dimensions and offers a foundation for future studies examining the interactions and dynamics between these constructs. This framework can direct future studies on sustainability and serve as a basis for further theoretical advancements and empirical inquiries.

The following are some of the management methods used in our study. First, the findings demonstrate that CEE may considerably advance green innovation and business, economic, and environmental performance. Therefore, businesses should emphasize the importance of an environmental culture and devote resources to creating and fostering CEE. Businesses can encourage green innovation by fully utilizing their internal environmental and ethical processes. Managers play a crucial role in upholding environmental obligations in organizations' hearts. Organizers should embrace a pro-environment perspective and advance environmental morals in their organizations in the face of mounting environmental pressure. Managers should create plans to promote the adoption of green innovation practices within their organizations. For instance, green innovation should be a part of corporate innovation tactics, awareness of the elements of green innovation should be created, and doable undertakings that improve trash recycling and reuse should be encouraged. Businesses should also invest in green to ensure a conducive atmosphere for creating green products or process innovations that allow resources.

These results underline the importance of businesses in promoting corporate environmental ethics. Managers should prioritize and promote moral behavior that supports long-term environmental sustainability. Organizations can improve their environmental performance by fostering a culture of environmental ethics and responsibility. Managers must understand how green innovation benefits and enhances both the economy and environmental performance of a firm. Investments in the creation of eco-friendly goods, procedures, and technologies can boost business performance while minimizing the organization's environmental effect, and the correlation between green innovation and performance should be considered, as it is moderated by environmental unpredictability. Managers must be mindful of the external forces that could undermine green innovation attempts. Organizations can more effectively traverse difficulties and opportunities by actively monitoring and adjusting to environmental uncertainties.

Organizations can better navigate difficulties and take advantage of opportunities for sustainable growth and performance by actively monitoring and responding to environmental uncertainties. Managers should establish a comprehensive strategy that incorporates green innovation and corporate ethical tactics into their everyday operations. This entails integrating green innovation into product creation, connecting company principles with environmental aims and continuously assessing and enhancing environmental performance. The healthcare manufacturing industry in Pakistan, a developing nation, was the subject of this study. This study offers information that managers working in related environments may adjust their performance and growth strategies. Managers can create successful projects that address local environmental issues and support economic growth by having a thorough understanding of the specific challenges and opportunities in developing countries. The study's conclusion highlights the virtue of incorporating corporate environmental ethics, green innovation, and environmental and economic performance into managerial decision making. Organizations can boost their overall performance, environmental stewardship, and ability to contribute to society by embracing green and ethical practices.

4.2 Limitations and Future Research

Our study had several limitations. First, only Pakistan was used for data collection. Additional research should examine the applicability of these results to other nations and scientific disciplines in various institutional environments. No vigorous changes in CEE, green innovation, or business economic and environmental performance have been observed because the data are cross-sectional. When circumstances allow, additional investigations could use longitudinal data to validate the model. Additionally, due to the lack of accuracy in objective measurements of business economic and environmental performance in Pakistan, our computation of firms' economic performance is dependent on subjective and relative measures instead of objective data or accounting-based indicators. Additionally, several businesses in our sample are not publicly traded.

REFERENCES

Abbas, M. W., & Ul Hassan, M. (2017), "Moderating impact of environmental turbulence on business innovation and business performance", *Pakistan Journal of Commerce and Social Sciences (PJCSS), Vol. 11* No 2, pp. 576-596.

Abreu, M. C. S. d., Cunha, L. T. d., & Barlow, C. Y. (2015), "Institutional dynamics and organizations affecting the adoption of sustainable development in the U nited K ingdom and B razil", *Business Ethics: A European Review, Vol. 24* No 1, pp. 73-90.

Acioli, C., Scavarda, A., & Reis, A. (2021), "Applying Industry 4.0 technologies in the COVID-19 sustainable chains", *International journal of productivity and performance management, Vol. 70* No 5, pp. 988-1016. doi:10.1108/Ijppm-03-2020-0137

Adomako, S., Ning, E., & Adu-Ameyaw, E. (2021), "Proactive environmental strategy and firm performance at the bottom of the pyramid", *Business Strategy and the Environment, Vol. 30* No 1, pp. 422-431.

Adomako, S., & Tran, M. D. (2022), "Environmental collaboration, responsible innovation, and firm performance: The moderating role of stakeholder pressure", *Business Strategy and the Environment, Vol. 31* No 4, pp. 1695-1704. doi:10.1002/bse.2977

Ahmed, W., Ahmed, W., & Najmi, A. (2018), "Developing and analyzing framework for understanding the effects of GSCM on green and economic performance: Perspective of a developing country", *Management of Environmental Quality, Vol. 29* No 4, pp. 740-758. doi:10.1108/Meq-11-2017-0140

Al-Mawali, H., Sharif, A., Rumman, G. A., Kerzan, F., & Liu, G. (2018), "Environmental strategy, environmental management accounting and organizational performance: evidence from the United Arab Emirates market", *Journal of Environmental Accounting and Management, Vol. 6* No 2, pp. 109-118.

Ali, K., Amir, M., & Malik, M. S. (2023a), "Strategic motives, proactive environmental strategies and corporate performance: Role of business model innovation and competitive intensity", *Pakistan Journal of Commerce and Social Sciences (PJCSS), Vol. 17* No 2, pp. 348-369.

Ali, K., Kausar, N., & Amir, M. (2023b), "Impact of pollution prevention strategies on environment sustainability: role of environmental management accounting and environmental proactivity", *Environ Sci Pollut Res Int, Vol. 30* No 38, pp. 88891-88904. doi:10.1007/s11356-023-28724-1

Alketbi, M. S., & Ahmad, S. Z. (2023), "Corporate social responsibility and sustainability practices: mediating effect of green innovation and moderating effect of knowledge management in the manufacturing sector", *International Journal of Organizational Analysis*, No. doi:10.1108/Ijoa-02-2023-3627

Amir, M., & Chaudhry, N. I. (2019), "Linking Environmental Strategy to Firm Performance: A Sequential Mediation Model via Environmental Management Accounting and Top Management Commitment", *Pakistan Journal of Commerce and Social Sciences, Vol. 13* No 4, pp. 849-867.

Amir, M., Malik, M. S., & Ali, K. (2023), "Unlocking green growth: an ARDL estimation of pollution prevention practices for economic and environmental sustainability", *Environment Development and Sustainability*, No, pp. 1-18. doi:10.1007/s10668-023-03449-w

Appannan, J. S., Mohd Said, R., Ong, T. S., & Senik, R. (2023), "Promoting sustainable development through strategies, environmental management accounting and environmental performance", *Business Strategy and the Environment, Vol. 32* No 4, pp. 1914-1930.

Baah, C., Opoku-Agyeman, D., Acquah, I. S. K., Agyabeng-Mensah, Y., Afum, E., Faibil, D. I., & Abdoulaye, F. A. M. (2021), "Examining the correlations between stakeholder pressures, green production practices, firm reputation, environmental and financial performance: Evidence from manufacturing SMEs", *Sustainable Production and Consumption, Vol. 27* No, pp. 100-114. doi:10.1016/j.spc.2020.10.015

Barney, J. (1991), "Firm Resources and Sustained Competitive Advantage", *Journal of management, Vol. 17* No 1, pp. 99-120. doi:Doi 10.1177/014920639101700108

Basu, S., Roy, M., & Pal, P. (2019), "Corporate greening in a large developing economy: pollution prevention strategies", *Environment Development and Sustainability, Vol. 21* No 4, pp. 1603-1633. doi:10.1007/s10668-018-0121-3

Brulhart, F., Gherra, S., & Quelin, B. V. (2019), "Do stakeholder orientation and environmental proactivity impact firm profitability?", *Journal of Business Ethics, Vol. 158* No, pp. 25-46.

Cai, W. G., & Li, G. P. (2018), "The drivers of eco-innovation and its impact on performance: Evidence from China", *Journal of Cleaner Production, Vol. 176* No, pp. 110-118. doi:10.1016/j.jclepro.2017.12.109

Cao, H. J., & Chen, Z. W. (2019), "The driving effect of internal and external environment on green innovation strategy-The moderating role of top management's environmental awareness", *Nankai Business Review International, Vol. 10* No 3, pp. 342-361. doi:10.1108/Nbri-05-2018-0028

Carballo-Penela, A., & Castromán-Diz, J. L. (2015), "Environmental policies for sustainable development: an analysis of the drivers of proactive environmental strategies in the service sector", *Business Strategy and the Environment, Vol. 24* No 8, pp. 802-818.

Chan, R. Y. K., Lai, J. W. M., & Kim, N. (2022), "Strategic motives and performance implications of proactive versus reactive environmental strategies in corporate sustainable development", *Business Strategy and the Environment, Vol. 31* No 5, pp. 2127-2142. doi:10.1002/bse.3011

Chaudhry, N. I., & Amir, M. (2020), "From institutional pressure to the sustainable development of firm: Role of environmental management accounting implementation and environmental proactivity", *Business Strategy and the Environment, Vol. 29* No 8, pp. 3542-3554. doi:10.1002/bse.2595

Chen, Y. S., & Chang, C. H. (2013), "Utilize structural equation modeling (SEM) to explore the influence of corporate environmental ethics: the mediation effect of green human capital", *Quality & Quantity, Vol. 47* No 1, pp. 79-95. doi:10.1007/s11135-011-9504-3

Cheng, H. W., Hu, X. M., & Zhou, R. (2019), "How firms select environmental behaviours in China: The framework of environmental motivations and performance", *Journal of Cleaner Production, Vol. 208* No, pp. 132-141. doi:10.1016/j.jclepro.2018.09.096

Chiou, T. Y., Chan, H. K., Lettice, F., & Chung, S. H. (2011), "The influence of greening the suppliers and green innovation on environmental performance and competitive advantage in Taiwan", *Transportation Research Part E-Logistics and Transportation Review, Vol. 47* No 6, pp. 822-836. doi:10.1016/j.tre.2011.05.016

Christmann, P. (2000), "Effects of "best practices" of environmental management on cost advantage: The role of complementary assets", *Academy of Management journal, Vol. 43* No 4, pp. 663-680. doi:10.5465/1556360

Chuang, S. P., & Huang, S. J. (2018), "The Effect of Environmental Corporate Social Responsibility on Environmental Performance and Business Competitiveness: The Mediation of Green Information Technology Capital", *Journal of Business Ethics, Vol. 150* No 4, pp. 991-1009. doi:10.1007/s10551-016-3167-x

Danso, A., Adomako, S., Lartey, T., Amankwah-Amoah, J., & Owusu-Yirenkyi, D. (2020), "Stakeholder integration, environmental sustainability orientation and financial performance", *Journal of business research, Vol. 119* No, pp. 652-662. doi:10.1016/j.jbusres.2019.02.038

Deslatte, A., Chung, J. W., & Stokan, E. (2023), "Structural drivers of sustainability and resilience strategies in small(ish) cities: a text analysis of comprehensive planning in Indiana", *Journal of Environmental Planning and Management,* No, pp. 1-22. doi:10.1080/09640568.2023.2240951

El-Garaihy, W. H., Farag, T., Al Shehri, K., Centobelli, P., & Cerchione, R. (2024), "Driving sustainability in supply chain management for a more inclusive and responsible future", *International journal of productivity and performance management, Vol. 73* No 1, pp. 43-84. doi:10.1108/Ijppm-01-2022-0028

Elkington, J. (2001), "The triple bottom line for 21st century business", *The Earthscan reader in business and sustainable development,* No, pp. 20-43.

Fabregat-Aibar, L., Barberà-Mariné, M. G., Terceño, A., & Pié, L. (2019), "A Bibliometric and Visualization Analysis of Socially Responsible Funds", *Sustainability, Vol. 11* No 9, pp. 2526. doi:10.3390/su11092526

Feng, Y. T., Lai, K. H., & Zhu, Q. H. (2022), "Green supply chain innovation: Emergence, adoption, and challenges", *International Journal of Production Economics, Vol. 248* No, pp. 108497. doi:ARTN 108497

Florida, R., & Davison, D. (2001), "Gaining from green management: environmental management systems inside and outside the factory", *California management review, Vol. 43* No 3, pp. 64-84.

Fornell, C., & Larcker, D. F. (1981), "Evaluating Structural Equation Models with Unobservable Variables and Measurement Error", *Journal of marketing research, Vol. 18* No 1, pp. 39-50. doi:Doi 10.2307/3151312

Gharib, M., Alam, M. S., Hawaldar, I. T., Murshed, M., Khan, U., Alvarado, R., & Rehman, I. U. (2022), "Roles of green intellectual capital facets on environmental sustainability in Oman", *Economic Research-Ekonomska Istraživanja,* No, pp. 1-19. doi:10.1080/1331677x.2022.2149591

Hadj, T. B. (2020), "Effects of corporate social responsibility towards stakeholders and environmental management on responsible innovation and competitiveness", *Journal of Cleaner Production, Vol. 250* No, pp. 119490. doi:ARTN 119490

Hair, J., Black, W., Babin, B., & Anderson, R. (2019), "Multivariate data analysis . Cengage Learning", *Hampshire, United Kingdom,* No.

Hair, J. F., Sarstedt, M., Ringle, C. M., & Mena, J. A. (2012), "An assessment of the use of partial least squares structural equation modeling in marketing research", *Journal of the academy of marketing science, Vol. 40* No 3, pp. 414-433. doi:10.1007/s11747-011-0261-6

Hart, S. L. (1995), "A Natural-Resource-Based View of the Firm", *Academy of management Review, Vol. 20* No 4, pp. 986-1014. Retrieved from <Go to ISI>://WOS:A1995TH52700014

Horry, R., Booth, C. A., & Mahamadu, A.-M. (2024). Contributions of environmental management systems (ISO 14001) towards the delivery of sustainable development goal 12. In *The Elgar Companion to the Built Environment and the Sustainable Development Goals* (pp. 250-264): Edward Elgar Publishing.

Huang, J. W., & Li, Y. H. (2017), "Green Innovation and Performance: The View of Organizational Capability and Social Reciprocity", *Journal of Business Ethics, Vol. 145* No 2, pp. 309-324. doi:10.1007/s10551-015-2903-y

Hummel, K., Laun, U., & Krauss, A. (2021), "Management of environmental and social risks and topics in the banking sector - An empirical investigation", *British Accounting Review, Vol. 53* No 1, pp. 100921. doi:ARTN 100921 10.1016/j.bar.2020.100921

Ibrahim, M., & Mahmood, R. (2022), "Proactive Environmental Strategy and Environmental Performance of the Manufacturing SMEs of Karachi City in Pakistan: Role of Green Mindfulness as a DCV", *Sustainability, Vol. 14* No 19, pp. 12431.

Ikram, M., Zhou, P., Shah, S., & Liu, G. (2019), "Do environmental management systems help improve corporate sustainable development? Evidence from manufacturing companies in Pakistan", *Journal of Cleaner Production, Vol. 226* No, pp. 628-641.

Iranmanesh, M., Zailani, S., Hyun, S. S., Ali, M. H., & Kim, K. (2019), "Impact of Lean Manufacturing Practices on Firms' Sustainable Performance: Lean Culture as a Moderator", *Sustainability, Vol. 11* No 4, pp. 1112.

Islam, T., Khan, M. M., Ahmed, I., & Mahmood, K. (2020), "Promoting in-role and extra-role green behavior through ethical leadership: mediating role of green HRM and moderating role of individual green values", *International Journal of Manpower, Vol. 42* No 6, pp. 1102-1123. doi:10.1108/ijm-01-2020-0036

Jasch, C. (2003), "The use of Environmental Management Accounting (EMA) for identifying environmental costs", *Journal of Cleaner Production, Vol. 11* No 6, pp. 667-676. doi:10.1016/S0959-6526(02)00107-5

Kapil, S., & Rawal, V. (2023), "Sustainable investment and environmental, social, and governance investing: A bibliometric and systematic literature review", *Business Ethics the Environment & Responsibility, Vol. 32* No 4, pp. 1429-1451. doi:10.1111/beer.12588

Kua, H. W. (2016), "A New Integrated Framework for Stakeholder Involvement in Sustainability Policymaking - A Multidisciplinary Approach", *Sustainable Development, Vol. 24* No 5, pp. 281-297. doi:10.1002/sd.1629

Kumar, N., Tyagi, M., & Sachdeva, A. (2023), "A sustainable framework development and assessment for enhancing the environmental performance of cold supply chain", *Management of Environmental Quality, Vol. 34* No 4, pp. 1077-1110. doi:10.1108/Meq-03-2022-0046

Lannelongue, G., Gonzalez-Benito, O., & Gonzalez-Benito, J. (2014), "Environmental Motivations: The Pathway to Complete Environmental Management", *Journal of Business Ethics, Vol. 124* No 1, pp. 135-147. doi:10.1007/s10551-013-1854-4

Le, T. T., Nguyen, T. M. A., & Phan, T. T. H. (2019), "Environmental Management Accounting and Performance Efficiency in the Vietnamese Construction Material Industry-A Managerial Implication for Sustainable Development", *Sustainability, Vol. 11* No 19, pp. 5152.

Li, D. H., Liao, Y. C., & Ma, P. C. (2022), "Contingent view on the relationship between proactive environmental strategy and corporate performance: Toward stakeholder engagement", *Corporate social responsibility and environmental management, Vol. 29* No 5, pp. 1605-1616. doi:10.1002/csr.2307

Li, X. C., Wang, N. M., Jiang, B., & Jia, T. (2023), "Institutional pressures and proactive environmental strategy: The mediating effect of top managerial environment attitude and the moderating effect of new media pressure", *Business Strategy and the Environment, Vol. 32* No 8, pp. 6106-6123. doi:10.1002/bse.3475

Li, X. D., Gao-Zeller, X., Rizzuto, T. E., & Yang, F. (2019), "Institutional pressures on corporate social responsibility strategy in construction corporations: The role of internal motivations", *Corporate social responsibility and environmental management, Vol. 26* No 4, pp. 721-740. doi:10.1002/csr.1713

Liston-Heyes, C., & Brust, D. A. V. (2016), "Environmental Protection in Environmentally Reactive Firms: Lessons from Corporate Argentina", *Journal of Business Ethics, Vol. 135* No 2, pp. 361-379. doi:10.1007/s10551-014-2473-4

Malik, M. S., Ali, K., Kausar, N., & Chaudhry, M. A. (2021), "Enhancing environmental performance through green hrm and green innovation: Examining the mediating role of green creativity and moderating role of green shared vision", *Pakistan Journal of Commerce and Social Sciences (PJCSS), Vol. 15* No 2, pp. 265-285.

Massoud, M. A., Fayad, R., El-Fadel, M., & Kamleh, R. (2010), "Drivers, barriers and incentives to implementing environmental management systems in the food industry: A case of Lebanon", *Journal of Cleaner Production, Vol. 18* No 3, pp. 200-209. doi:10.1016/j.jclepro.2009.09.022

Mathivathanan, D., Agarwal, V., Mathiyazhagan, K., Saikouk, T., & Appolloni, A. (2022), "Modeling the pressures for sustainability adoption in the Indian automotive context", *Journal of Cleaner Production, Vol. 342* No, pp. 130972.

Mohamed, R., & Jamil, C. Z. M. (2020), "The influence of environmental management accounting practices on environmental performance in small-medium manufacturing in Malaysia", *International Journal of Environment and Sustainable Development, Vol. 19* No 4, pp. 378-392. Retrieved from <Go to ISI>://WOS:000588446200004

Nassani, A. A., Yousaf, Z., Radulescu, M., Balsalobre-Lorente, D., Hussain, H., & Haffar, M. (2023), "Green Innovation through Green and Blue Infrastructure Development: Investigation of Pollution Reduction and Green Technology in Emerging Economy", *Energies, Vol. 16* No 4, pp. 1944.

Ni, L. K., Ahmad, S. F., Alshammari, T. O., Liang, H. S., Alsanie, G., Irshad, M., . . . Ayassrah, A. Y. A. B. A. (2023), "The role of environmental regulation and green human capital towards sustainable development: The mediating role of green innovation and industry upgradation", *Journal of Cleaner Production, Vol. 421* No, pp. 138497.

Raza, S. A., & Khan, K. A. (2022), "Impact of green human resource practices on hotel environmental performance: the moderating effect of environmental knowledge and individual green values", *International Journal of Contemporary Hospitality Management, Vol. 34* No 6, pp. 2154-2175. doi:10.1108/Ijchm-05-2021-0553

Rehman, S. U., Bresciani, S., Yahiaoui, D., & Giacosa, E. (2022), "Environmental sustainability orientation and corporate social responsibility influence on environmental performance of small and medium enterprises: The mediating effect of green capability", *Corporate social responsibility and environmental management, Vol. 29* No 6, pp. 1954-1967. doi:10.1002/csr.2293

Rizzi, F., Pellegrini, C., & Battaglia, M. (2018), "The structuring of social finance: Emerging approaches for supporting environmentally and socially impactful projects", *Journal of Cleaner Production, Vol. 170* No, pp. 805-817. doi:10.1016/j.jclepro.2017.09.167

Rodrigue, M., Magnan, M., & Boulianne, E. (2013), "Stakeholders' influence on environmental strategy and performance indicators: A managerial perspective", *Management Accounting Research, Vol. 24* No 4, pp. 301-316. doi:10.1016/j.mar.2013.06.004

Roxas, B., & Coetzer, A. (2012), "Institutional Environment, Managerial Attitudes and Environmental Sustainability Orientation of Small Firms", *Journal of Business Ethics, Vol. 111* No 4, pp. 461-476. doi:10.1007/s10551-012-1211-z

Sarkar, B., Ullah, M., & Sarkar, M. (2022), "Environmental and economic sustainability through innovative green products by remanufacturing", *Journal of Cleaner Production, Vol. 332* No 2, pp. 129813.

Shahzad, M., Qu, Y., Javed, S. A., Zafar, A. U., & Rehman, S. U. (2020), "Relation of environment sustainability to CSR and green innovation: A case of Pakistani manufacturing industry", *Journal of Cleaner Production, Vol. 253* No, pp. 119938.

Sharma, S., & Aragón-Correa, J. A. (2005), "Corporate environmental strategy and competitive advantage: a review from the past to the future", *Corporate environmental strategy and competitive advantage,* No, pp. 1-26. Retrieved from <Go to ISI>://WOS:000283869600001

Shu, C. L., Zhou, K. Z., Xiao, Y. Z., & Gao, S. X. (2016), "How Green Management Influences Product Innovation in China: The Role of Institutional Benefits", *Journal of Business Ethics, Vol. 133* No 3, pp. 471-485. doi:10.1007/s10551-014-2401-7

Shubham, Charan, P., & Murty, L. S. (2018), "Organizational adoption of sustainable manufacturing practices in India: integrating institutional theory and corporate environmental responsibility", *International Journal of Sustainable Development and World Ecology, Vol. 25* No 1, pp. 23-34. doi:10.1080/13504509.2016.1258373

Steurer, R., Langer, M. E., Konrad, A., & Martinuzzi, A. (2005), "Corporations, stakeholders and sustainable development I: A theoretical exploration of business-society relations", *Journal of Business Ethics, Vol. 61* No 3, pp. 263-281. doi:10.1007/s10551-005-7054-0

Xuecheng, W., Iqbal, Q., & Saina, B. (2022), "Factors Affecting Employee's Retention: Integration of Situational Leadership With Social Exchange Theory", *Front Psychol, Vol. 13* No, pp. 872105. doi:10.3389/fpsyg.2022.872105

Yan, C., Siddik, A., Yong, L., Dong, Q. L., Zheng, G. W., & Rahman, M. N. (2022), "A Two-Staged SEM-Artificial Neural Network Approach to Analyze the Impact of FinTech Adoption on the Sustainability Performance of Banking Firms: The Mediating Effect of Green Finance and Innovation", *Systems, Vol. 10* No 5, pp. 148.

Zagloel, T. Y. M., Siregar, M. T., Hidayatno, A., & Setiawan, A. D. (2024), "Development of sustainable logistics performance model using system dynamics in urban logistics service companies in Indonesia", *Cogent Business & Management, Vol. 11* No 1, pp. 2286684. doi:Artn 2286684
10.1080/23311975.2023.2286684

Zhong, C., Guo, H. J., Swan, I., Gao, P., Yao, Q. X., & Li, H. (2023), "Evaluating trends, profits, and risks of global cities in recent urban expansion for advancing sustainable development", *Habitat International, Vol. 138* No, pp. 102869.

Zhou, K., Jin, X., Li, X., & Tao, Y. (2024), "Enhancing sustainable development through effective disclosure: Corporate environmental performance and readability", *Corporate social responsibility and environmental management, Vol. 31* No 1, pp. 274-291.