



# Linking environmental corporate social responsibility to firm performance: The role of partnership restructure

Zohaib Hussain Makhdoom<sup>1</sup> · Yongqiang Gao<sup>1</sup> · Xi Song<sup>2</sup> · Wali Muhammad Khoso<sup>3</sup> · Zulfiqar Ali Baloch<sup>3</sup>

Received: 15 November 2022 / Accepted: 2 February 2023 / Published online: 9 February 2023  
© The Author(s), under exclusive licence to Springer-Verlag GmbH Germany, part of Springer Nature 2023

## Abstract

In this study, we integrate the signal institutional theory and stakeholder theory to examine partnership restructure as a critical mechanism linking environmental corporate social responsibility (ECSR) to corporate financial performance. Keeping in line with most prior studies, we first argue that a positive relationship exists between ECSR and firm performance. Then we propose that partnership restructure mediates the nexus between ECSR and firm performance because ECSR may motivate firms to change their partners in the better interests of the firms. In addition, we propose that the firms' industry power will exaggerate while dysfunctional competition will weaken the positive nexus between ECSR and partnership restructure. Evidence based on a survey covering 206 manufacturing firms in China offers good support for our predictions. This last section offers research contributions and implications for the managers based on the findings.

**Keywords** Environmental corporate social responsibility · Partnership restructure · Dysfunctional competition · Firm performance · Industry power

## Abbreviations

CSR	Corporate social responsibility
ECSR	Environmental corporate social responsibility
SEM	Structural equation modelling
AMOS	Analysis of moment structures
SPSS	Statistical Package for Social Sciences
CMIN	Chi-square value
RMSEA	Root mean error of approximation

CFI	Comparative fit index
NFI	Normed fit index
NNFI	Non-normed fit index
IFI	Incremental fit index

## Introduction

Corporate social responsibility (CSR) has been a fascinating field among industrial experts and research scholars in the last few decades. According to European Commission (2011), CSR is the responsibility of firms for their impacts on society. A CSR firm must consider the actions' social, environmental, and consumer consequences to maximize its shareholders' wealth. CSR has become widespread in many firms over the last few decades. In this research article, we have specifically focused on the environmental domain of CSR called environmental corporate social responsibility (ECSR) because it can significantly enhance the production of critical resources while simultaneously reducing the negative impact on the environment (Deng et al. 2022; İşik et al. 2017; Song and Yu 2018). Furthermore, it would be easier for the firms to manage growing pressure from society, government, and international agencies and help firms to have a competitive advantage in the market (Calantone et al. 2002; Khan et al. 2022). Therefore, ECSR aims to reduce the

Responsible Editor: Arshian Sharif

✉ Zohaib Hussain Makhdoom  
zmakhdoomstu@hust.edu.cn

Yongqiang Gao  
yqgao@hust.edu.cn

Xi Song  
songq@lzu.edu.cn

Wali Muhammad Khoso  
wali\_muhammad27@hotmail.com

Zulfiqar Ali Baloch  
balochzulfiqarali@nuaa.edu.cn

<sup>1</sup> School of Management, Huazhong University of Science and Technology, Wuhan, China

<sup>2</sup> School of Management, Lanzhou University, Lanzhou, China

<sup>3</sup> College of Economics and Management, Nanjing University of Aeronautics and Astronautics, Nanjing, China

hazardous effect on the environment created through continuous business activities and maintain firm performance simultaneously.

Environmental corporate social responsibility (ECSR) refers to organizations' actions to address environmental issues and promote sustainable development. This can include reducing carbon emissions, conserving natural resources, and promoting environmentally friendly products and services. Research has shown that ECSR can positively impact a firm's performance (Habaragoda 2018; Rahman and Post 2012; Wang et al. 2021). Adopting ECSR practices can lead to cost savings through resource efficiency, increased revenue through developing new products and services, and improved reputation and brand image (Işık et al. 2021; Razaq et al. 2022). Additionally, many consumers and investors are becoming increasingly interested in socially responsible investing and are more likely to support environmentally responsible companies.

During the development of sustainable industries, ECSR can play a crucial role in helping firms to stay competitive (Ahmad et al. 2021a, b; Pata and Isik 2021). It can enable firms to take advantage of new market opportunities, improve their reputation, and reduce their environmental impact (Işık et al. 2022; Sinha et al. 2021). However, it is important to note that implementing ECSR practices can also be challenging and may require significant investment, so firms should consider the costs and benefits before deciding. Overall, ECSR can positively impact a firm's performance, especially during the development of sustainable industries. It can help companies reduce costs, increase revenue, and improve their reputation, ultimately leading to better performance.

Partnership restructuring refers to bringing changes in the firm's partnership to deal with unforeseeable issues. When a firm adopts high ECSR, it may expect its partners to make some change (restructuring). That is because, strategically, it is an excellent option to reorganize the firm partnership structure to find a competitive position to take advantage of the prospects that are currently accessible. Therefore, high ECSR may motivate the focal firm to initiate partnership restructuring, which will likely enhance firm performance. Furthermore, "industrial power" is a term that describes a company's status in a social rank or hierarchy and its level of influence inside a particular industry (Feng et al. 2015; Khan et al. 2021). In the case of high industrial power, firms are often highly recognized with respect and recognition from the competitors in terms of performance and status of the firm, which is socially constructed (Deng et al. 2022; Lee 2009).

Taking the case of emerging countries, the development of the market institutions is not stable; suitable property protection is limited and dysfunctional competition is proven to impact the financial performance of the firms negatively (Jean et al. 2014; Smirnova 2020). On the other hand, it is believed

that dysfunctional competition is not necessarily destructive, especially regarding new modifications in the business structure (Xu et al. 2021), as dysfunctional competition has the potential to compel a company to sharpen its focus and search for a more efficient approach (Liu and Atuahene-Gima 2018) by significant innovative practices (Du et al. 2016; Zhao et al. 2021). This research examines how dysfunctional competition moderates between ECSR and partnership restructure.

This research has made several contributions. Firstly, the relationship between ECSR and firm performance offers a novel contribution to the literature by investigating the potential mediating and moderating factors that influence the relationship between ECSR and firm performance. Such as, our research investigates the role of different types of partnerships structure, such as those with suppliers, customers, and government agencies in mediating the relationship between ECSR and firm performance. Secondly, our research investigates the moderating effect of industry power, such as high and low power, on the relationship between ECSR and partnership structure. Thirdly, the relationship between ECSR and firm performance offers a novel contribution to the literature by investigating the relationship in specific industries. For example, our research investigates the relationship between ECSR and firm performance in emerging economies like China, which is undergoing significant transformation. Finally, our research provides insights into how the relationship between ECSR and firm performance varies and can inform policymakers and practitioners in these specific settings.

In the paper, a whole structure is followed as, in the first section of the introduction, the background and significance of the research topic are discussed, along with the objectives that the study aims to address. In the second section of the literature review, the existing literature on the topic is reviewed and analyzed to provide context and support for the current study. In the third section of theory and hypothesis development, important theories are integrated, and hypotheses are developed to test the relationship between variables. The fourth section of the research methodology details the methods used to conduct the research, including the study design, participants, data collection, and analysis techniques. In the fifth section of data analysis and results, the findings are presented in this section, including any statistical analyses, tables, and figures to support the results along with discussion on findings. The conclusion's final section summarizes the main findings, policy implications, research limitations, and future direction.

## Literature review

### A possible link between ECSR and firm performance

Environmental corporate social responsibility (ECSR) refers to the actions and policies companies undertake to

minimize their negative environmental impact and promote sustainability. Several research studies have previously been conducted to understand the nexus between ECSR and firm performance (Kong et al. 2020; Wang et al. 2020; Wei et al. 2017). Recent literature suggests that ECSR can have a positive impact on firm performance. A study by Salim et al. (2019) found that ECSR practices, such as implementing environmental management systems and reducing carbon emissions, are associated with improved financial performance. Another study published by Zhou et al. (2021) found that ECSR is positively associated with improved reputation and brand image, leading to increased sales and market share.

However, some studies have found that the relationship between ECSR and firm performance is not always straightforward. According to Yang et al. (2019), ECSR can positively impact firm performance in developed countries, but the relationship may be weaker in developing countries. A study by (Wei et al. 2017) found that the relationship between ECSR and firm performance is moderated by factors such as industry type and firm size.

Along with research, scholars have mixed results regarding ECSR and firm performance, but their results support the positive nexus between ECSR and firm performance. For instance, research scholars stress that when ECSR is vital in firms, it will ultimately enhance the firm's overall performance (Habaragoda 2018; Rahman and Post 2012; Wang et al. 2021) and reduce its operational risk (Jo and Na 2012; Zhao et al. 2016), and positively influence the overall reputation in the organizational settings and among stakeholders (Feng et al. 2017; Iwu-Egwuonwu and Chibuike 2010). Despite this positive effect, the mechanisms linking ECSR to firm performance have been less explored in previous studies. Overall, the literature suggests that ECSR can positively impact firm performance, but the relationship is complex and may be influenced by various factors. More research is needed to understand better the mechanisms through which ECSR affects firm performance and to identify the specific ECSR practices that are most effective in improving performance.

### Partnership restrucutre

The partnership structure has been identified as a possible link between environmental corporate social responsibility (ECSR) and firm performance in recent literature. Several studies have found that firms that engage in ECSR initiatives and form partnerships with stakeholders, such as government agencies and other businesses, positively impact their financial performance. According to Fijałkowska et al. (2018), firms that engage in ECSR initiatives, such as reducing greenhouse gas emissions, have a higher return on assets and equity than firms that do not engage in these initiatives.

The study also found that firms that form partnerships with stakeholders and government agencies impact their financial performance.

Another study by Ho et al. (2021) found that firms in the energy sector that engage in ECSR initiatives, such as renewable energy projects, and form partnerships with other firms impact their financial performance. According to Adamkaite et al. (2023), these partnerships help firms share knowledge and resources, improving their environmental and financial performance. In conclusion, the literature suggests that firms engaging in ECSR initiatives and forming partnerships with stakeholders significantly impact their financial performance. These partnerships can help firms to share knowledge and resources, which in turn improves their environmental performance and financial performance.

### Dysfunctional competition

Dysfunctional competition is one of the critical environmental elements which defines how firms carry out unfair, unlawful, and opportunistic tactics during the competition in the market (Saqib et al. 2022; Zhang et al. 2017). It is essential to investigate this context because businesses have a hard time properly harvesting environmental advantages when they are up against high levels of dysfunctional competition, which weakens the partnership construct (Boso et al. 2019; Suki et al. 2022). Recent literature suggests a moderating effect of dysfunction competition on the relationship between ECSR and firm performance.

A study by Kim and Cavusgil (2020) found that when firms operate in industries with high levels of dysfunctional competition (such as high levels of unethical or illegal behavior), the positive relationship between ECSR and firm performance is weakened. However, the positive relationship between ECSR and firm performance is strengthened in industries with low levels of dysfunctional competition. Another study by Zhao et al. (2021) also found that dysfunctional competition moderates the relationship between ECSR and firm performance. They found that in industries with high levels of dysfunctional competition, firms that engage in ECSR activities experience lower financial performance compared to firms that do not engage in ECSR activities. However, in industries with low levels of dysfunctional competition, firms that engage in ECSR activities experience higher financial performance than firms that do not engage in ECSR activities.

Liu and Atuahene-Gima (2018) found that dysfunctional competition negatively modifies the relationship between ECSR and firm performance. They found that in industries with high levels of dysfunctional competition, firms that engage in ECSR activities experience lower financial performance compared to firms that do not engage in ECSR activities. However, in industries with low levels of dysfunctional

competition, firms that engage in ECSR activities experience similar financial performance compared to firms that do not engage in ECSR activities. These studies suggest that dysfunctional competition plays a significant role in moderating the relationship between ECSR and firm performance and that the positive relationship between ECSR and firm performance is stronger in industries with low levels of dysfunctional competition.

### Industry power

Recent literature suggests that industry power can mediate the relationship between environmental corporate social responsibility (ECSR) and partnership structure. For example, a study by Wang (2011) found that in industries with high levels of power concentration, companies were less likely to engage in ECSR activities but were more likely to form partnerships with other firms to address environmental issues. Similarly, a study by Liu et al. Han et al. (2016) found that in industries with high levels of power concentration, companies were less likely to adopt ECSR practices but were more likely to form strategic alliances to address environmental concerns.

Industries known for their high power in the market have three essential features. Firstly, firms can handle any specified task because of their experience (Anser et al. 2021; Porter 1979). Secondly, it plays a significant role in shaping business growth. Firms at the forefront of high technology sometimes pioneer technologies that others in the industry follow and learn (Khan et al. 2021; Stuart et al. 1999). Thirdly, due to its superior industrial position, it often possesses significant negotiating leverage over the many trade partners it interacts with (Sørensen 2002). Industry power generates different results when it is high or low. When industry power is high, it improves the impact of ECSR on partnership restructure, but when it is low, it indicates a negative relationship between ECSR and partnership restructure.

These findings suggest that companies may be less inclined to engage in ECSR activities independently in industries with high levels of power concentration but are more likely to form partnerships with other firms to address environmental issues. That may be because companies in these industries face greater barriers to entry and have more limited resources, making it more difficult for them to address environmental concerns independently. These findings suggest that companies may be less inclined to engage in ECSR activities independently in industries with high levels of power concentration but are more likely to form partnerships with other firms to address environmental issues. That may be because companies in these industries face greater barriers to entry and have

more limited resources, making it more difficult for them to address environmental concerns independently.

## Theory and hypotheses development

### Environment corporate social responsibility

Firms have been under enormous pressure to be green as environmental problems increase, and firms are considered the root cause of those problems (Child and Tsai 2005). Therefore, ECSR has increasingly been considered in firms' strategic decision-making and corporate landscapes (Chuang and Huang 2018). Although ECSR practical attention is widely observed, whether firm performance gets benefits remains controversial in several research studies.

Considering the neoclassical economic approach, (Walley and Whitehead 1994) suggested that ECSR causes unnecessary costs for the firms, such as variable and high fixed costs, which negatively affect the firm financial performance. When recyclable materials are used in the firm, variable costs are increased, and when additional equipment is purchased to control pollution, high fixed costs are increased (McWilliams and Siegel 2001). On the other hand, another research study examines that because ECSR signifies firm green-related capabilities that are not substitutable, a firm's operational efficiency may increase (Hart 1995) and can lead to entering into a new sustainable market (Kim 2013). Furthermore, ECSR may help a firm to improve reactions and relationships of stakeholders (Flammer 2013; Wei et al. 2017), get the attention of customers (Chuang and Huang 2018), and access valuable resources (Cheng et al. 2014; Wei et al. 2017).

As mixed empirical evidence is presented in several research studies, recent studies focus on these irregularities and identify mediating approaches and contingency factors linking firm performance and ECSR. A Dixon-Fowler et al. (2013) study shows that ECSR's role relies on customer awareness, investors' environmental cognition, and firm characteristics (such as ownership and size). As a result of underlying mediating approaches, Hsu (2012) identifies the persuasive and informative advertising impact of CSR. Therefore, it helps to improve the firm's performance and reputation. According to Marquis and Qian (2014), CSR reports as a fundamental aspect of a political strategy implies an organizational response to government demand.

This research article aligns with the current literature stream, and our study examines how partnership structures mediate the relationship between ECSR and firm performance. To protect the environment, we also identify how dysfunctional competition moderates the relationship

between ECSR and partnership restructure. If dysfunctional competition is high, it will not boost the confidence among stakeholders because of the uncertain situation of the firm performance. Moreover, we also examine industry power to moderate the relationship between ECSR and partnership restructure.

Furthermore, this research work has tested a theoretical model (Fig. 1) based on data collected from 206 firms in China. Talking about China, as it is proliferating, 70% of total energy is consumed by industries, which causes great harm to the environment as total SO<sub>2</sub> emissions are recorded at around 83%, and dust and smoke emissions are recorded at around 80% (Salaam 2017). Numbers have exaggerated environmental concerns, making ECSR practices essential for their sustainability. China has continuously changed its economical approach to a market-based economy instead of a planned economy. So in the case of China, it is essential to examine the association between ECSR, partnership restructuring, dysfunctional competition, industrial power, and firm performance.

### ECSR and firm performance

As a result of growing concerns over environmental issues, more and more industrial firms dedicate time and money to fulfilling environmental corporate social responsibility (ECSR) (Buysse and Verbeke 2003). ECSR represents a company's energy efficiency function and emission control measures. Mazurkiewicz (2004) reported positive affecting firm performance. ECSR participation represents a company's alignment with external stakeholders' environmental requirements (Wei et al. 2017).

Positive assessment improves the firm's performance and the connection between firms and their external stakeholders. Previous research indicated that successful organizations through ECSR are more likely to be profitable (Barnea and Rubin 2010). On the one aspect, active ECSR reporting can improve a company's image and attract customers and stakeholders (Luo et al. 2012; Matsumura et al. 2014).

Wide ECSR, in the opposite way, contributes to the positive role of coordinating stakeholder relationships (Connelly et al. 2011; Orlitzky and Benjamin 2001; Salama et al. 2011; Sheng et al. 2011; Tencati et al. 2004). Therefore, ECSR can signal the shoppers that the firm's actions are lawful, which is essential to the organization (Tzouvanas et al. 2020). This signal lowers information asymmetry, promotes information transparency, and enhances the efficacy of shareholders' interpretations of firm performance. Other stakeholder theory researchers claim that companies are intrinsically driven to strengthen ECSR on the condition that corporations see ECSR determine close ties with stakeholders (Flammer 2013) and improve firm performance. Therefore, we hypothesize.

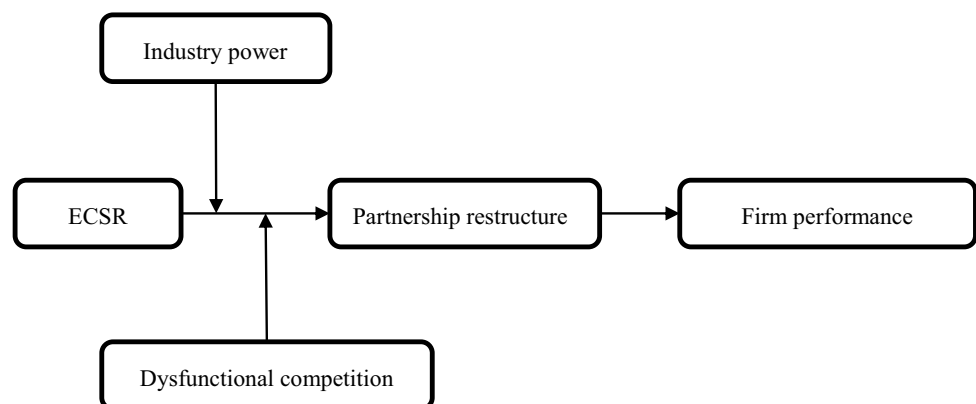
H1: Environmental corporate social responsibility positively impacts firm performance.

### The mediating effect of partnership restructure

In the organizational setting, bringing changes into this market must meet the firm's goals. Partnership restructuring is crucial to realize the required objectives if the firm performs a shot to possess a competitive advantage. While restructuring the weather of the firm's partnership, it is vital to supply complementary/new capabilities to boost its performance (Osborn and Hagedoorn 1997). Firms restructure their partners in search of resource integration to own power for creating a solid network (Das et al. 1998; Lin et al. 2007; Sengupta 1998) as the resource base view emphasizes that the competitive strategy of the firms is set by its available resources (Barney 1991). Although specific resources cannot be traded effectively, a partnership approach gradually provides firms with valuable support from partners (Das and Teng 2000).

However, there is also the tutorial viewpoint that alliances are only a result of social rationale and social responsibility (Zukin and DiMaggio 1990). Close associates significantly impact the firms' productivity and success within the

Fig. 1 Research model



marketplace (Baum and Oliver 1991; Podolny 1994). The method of restructuring alliances is developed to assist firms in claiming their position and building their reputation by including more well-known partners (Hitt et al. 2000). Lane and Lubatkin (1998) indicate that partnership structure features a more significant effect on firm performance.

Dynamic environments and market uncertainties enable companies to compete more actively (D'Aveni et al. 2010). More broadly, in fast-growing markets, active power, such as alliance management, is critical (Eisenhardt and Martin 2000). According to Sarkar et al. (2001), the restructuring partnership alliance's firepower could significantly reformulate partnership insights, presumably showing high business growth in increasing market prospects. It provides companies with incentives to ally with partners who seize innovation opportunities. For example, Park and Zeikus (2002) find that businesses are more likely to join partnerships that positively impact their corporate results in green innovators.

Similarly, Sarkar et al. (2009) deduced that a competitive market grows the partnership's proactive financial returns. Leischnig and Geigenmüller (2018) consider that market dynamics are the driving force in strategic and environmental situations. These arguments suggest that partnership restructuring is associated with volatility and ECSR. Thus, this study proposes the effects of ECSR on Partnership restructures. Based on the above mentioned, our first hypothesis could be:

H2: The relationship between ECSR and firm performance is mediated by partnership restructure.

### The moderating effect of industrial power

The theory examines the influence of ECSR's efficiency. Organizational-industrial influences affect the firm's competitiveness with its rivals (Kim and Park 2018; Podolny 1993) and market strength (Castellucci and Ertug 2010; Podolny 1993). Industrial power is a signaling function that affects ECSR's efficiency. Correspondingly, environmental performance progress is concentrated on ecological contributions from individual companies and a general commitment to improving environmental governance worldwide (Buysse and Verbeke 2003). Companies with industrial power alter benchmarks. Therefore, the orientation towards growth captivates government attention. Classifying a business with low industrial power implies its incompatibility with efficiency. The corporation, thence, has little impact on the industrial benchmarks. The environmental status is insufficient to draw on public interest, thereby weakening the effect of ECSR on the partnership restructuring. When industrial power rises, its rivals usually learn and imitate it. The positive impact of industrial-environmental governance

is advanced green-manufacturing technologies and high levels of environmental protection, wherein governments strive to enhance industrial-environmental efficiency. We consider the subsequent hypothesis:

H3: The industry power significantly moderates ECSR's influence on PR, such that it is more efficient for full industry power than for low industry power.

### The moderating effect of dysfunctional competition

According to the institution-based efficacy argument, institutional settings restrict managers' decisions (Peng and Delios 2006). When formulating strategies, Chinese managers consider the effects of dysfunctional competition, a unique aspect of the country's institutional setting (Peng 2013; Sheng et al. 2013; Zhou and Poppo 2010). Companies often encounter unfair or illegal competitive market activities when the dysfunctional competition level is high (Cai et al. 2017; Li and Li 2009; Sheng et al. 2013). In addition, opportunistic behavior is seldom severely penalized in a dysfunctional market, increasing uncertainty and undermining the institutions' support (Lu et al. 2008; Peng et al. 2009).

Competition starts when an organization launches a replacement product within the market or fulfills consumer requirements. Although applicable, innovative products could enable rivals to imitate or react to new products with better characteristics, an institutional structure supported by the market, precisely one with a well-developed property security system, hinders both imitation and criminality from assisting innovators to preserve their innovations' rewards (Dickson 1992; Hunt and Morgan 1995).

Legal rules that operate portals of data aid ECSR's information stakeholders in searching for legitimacy assessments. Legal frameworks operate because the government standards regulator evaluates whether the ECSR of an enterprise meets its requirements. It must enhance ultimate performance to the appropriate business partners. Hence, we argue that dysfunctional competition is high, and firms could work smoothly on ECSR irrespective of the chance taken. Thus, we propose the subsequent hypotheses:

H4: The dysfunctional competition significantly moderates the connection between the positive effect of ECSR on partnership restructure.

## Research methodology

### Sample and data collection

For hypothesis testing, an empirical analysis was conducted. This research design is quantitative; the survey was

circulated in Chinese manufacturing industries to gather primary data to validate the theories. Firstly, we developed an initial questionnaire, supported literature evaluation, and contacted eight top managers with 12 senior managers' guidance. We performed a pilot study to ensure that each criterion was well understood about ECSR. The 12 top managers were appointed vice presidents, managing executives, and executive directors. We asked them to reply to any questions from the survey. The pilot test input lets us refine the survey questionnaires and approve the ultimate result. Secondly, the sample frame would be chosen from local authorities. A preliminary analysis has been conducted with no public contact information from leading managers—we intercommunicate with local governments for the corporate list (Wei et al. 2015).

We chose 500 businesses spontaneously. The highest management rank of those companies received contact information. First, we reached the highest managers who had spare time and then visited their organizations for an on-site survey. Although expensive, managers make it possible to complete the study and respond appropriately to the questionnaire (Li et al. 2010; Sheng et al. 2011). The sample questionnaire from team leaders/representatives of the sampling protocol was supported (Lim and Ployhart 2004). The listing of Chinese organizations with contact details with many top administrators was not openly available. Studies depend upon public authorities to produce those lists (Li et al. 2010; Walker et al. 2014).

In China, local governments create economic development zones for the listed organization. These companies have the responsibility of the govt departments. We addressed the sustainable growth field. They sent us a rundown of thirteen thousand companies, 500 s randomly chosen. We obtained the phone numbers from the govt department's top managers' e-mail and addressed 500 companies that were selected. Of the five hundred companies addressed, 296 were involved, 126 omitted questionnaires, the sample was done slipshod, or non-producing companies left 206 processing businesses (34%) with a final study. To calculate the number of answers, a *t*-test was performed to match non-responding companies for every organization's age, scale, and profits. There was no risk of non-response. Since all *t*-statistics have not been meaningful, the sample profile is shown in Table 1. We have contrasted the placement distribution for surveys A and A of the 340 respondents. B. the Mann-White and the two-sample tests ( $Z = -0.090$ , Asymp. Sig. = 0.898). The Kolmogorov – Smirnov test revealed an edge of the = 0.242, Asympus = 1.00. There was no substantial variation between surveys A and B.

The statistical strength of the structural equation model (SEM) test made up our minds within the sample size (McQuitty 2004). Gender, education, and knowledge were considered control variables for this research. Various

analyses for SPSS and AMOS served, like reliability and validity analysis, correlation, and confirmatory factor multivariate analysis for hypothesis testing. The info was evaluated statistically to associate the independent, moderating, mediating, and dependent variables.

## Measurements

It was previously argued by Walker et al. (2014) the insufficient public data in China. Therefore, most of the studies rely upon the gathering of survey data. It was essential to widen this study's scope; consequently, we considered previous reviews and in-depth interviews to gather sufficient data. The participants of this study were asked to gauge the questions developed at 5 points Likert scale. The developed constructs were measured to support the commonality of the things. Survey items are reported in Table 1.

### Environmental corporate social responsibility

Environmental corporate social responsibility measurement supported four items, followed by Zhu and Sarkis (2004) study. The four items were developed to pertain to how firms put efforts into consuming natural resources, minimizing the pollution of a product, accelerating product recycling, and controlling the pollution caused by the assembly process relative to their competitors. It had been essential to spot the greenness of each industry, which was more established by its managers. While conducting the pilot study, managers suggested that managers measure ECSR. It is essential to consider significant competitors' industries than sectors that do not set established standards.

### Partnership restructure

Partnership restructure was measured with a self-developed scale that supported previous studies closely associated with partnership restructure. The measurement was allotted for partnership restructures and supported five items scale about the extent of partnership among competitors for finding new partners. It accurately evaluates the potential of its partners, establishes a decent relationship with new partners quickly, for bringing in new partners who support changes, and is opulent at adapting its network of versatilities' partners. Thus, it was crucial to consider these things in measurement to grasp the influence of partnership restructures.

### Dysfunctional competition and industry power

We have established dysfunctional competition with four items from the study of Li and Atuahene-Gima (2001), which determine how often the corporate has endured unlawful actions, including theft, falsification, illegal copying of

**Table 1** Measurement of the reliability and validity

Variables	Items	Loading	Reliability and validity
Environmental CSR	We have more environmentally friendly products	0.904	CR=0.878
	We consume a lesser amount of natural resources in our production processes	0.904	AVE=0.749
	We employ environmentally friendly production processes to reduce environmental degradation	0.909	
	The material we use in production can be easily recycled	0.729	
Dysfunctional competition	Business practices that are unlawful, for example, the unauthorized copying of the products	0.789	CR=0.867
	Other firms copy trademarks and products of your firms	0.751	AVE=0.657
	A market competitive where your intellectual property is not protected by law	0.867	
	When information is released in advance, unfair competition practices can be realized	0.829	
Industry power	We have a great influence on our customers	0.791	CR=0.870
	We have a great influence on our suppliers	0.777	AVE=0.519
	We have a great influence on industrial competition	0.852	
	We have a great influence on standardizing industrial settings	0.799	
	We have a great influence on standardizing competition rules of the industries	0.842	
Partnership restructure	Is good at finding new partners	0.850	CR=0.913
	Accurately evaluate the potential of its partners	0.813	AVE=0.587
	Establish a good relationship with new partners quickly	0.878	
	Is good at bringing in new partners based on changes	0.883	
	Is good at adapting its network of partners to change	0.881	
Firm performance	Sales Return	0.886	CR=0.854
	Investment return	0.886	AVE=0.573
	Return on assets	0.836	
	Sale growth	0.769	
	Profit growth	0.605	

recent products, and unequal competitive practices. This measure was frequently employed in other business and institutional evaluation studies in developing economies, e.g., (Sheng et al. 2011; Zhang et al. 2007), in an exceedingly resource-based approach (Kraaijenbrink et al. 2010), we built an industrial power scale and in-depth interviews of Spender and Groen with top managers in each corporation. Our industrial strength is calculated on a five-point scale covering the business's impact, the business standard, consumers, manufacturers, and rivals.

### Measurement control variable

Throughout this study, several control variables included firm age, size, chemical and pharmaceutical, instrument manufacturing, food and textile, special equipment, institutional environment, and resource munificence. We included firm age, size, industry type, industry life cycle, technology uncertainty, sales ratio, institution inefficiency, government influence, and environment munificence as control variables to account for extraneous variables' effects. The requirement to involve firm age and size is adopted extensively (Chandy and Tellis 2000). We used the logarithm of the number of

operation years as a representation of firm age, and also, the logarithm of the number of employees indicated firm size. We involve various dummy variables for industry type to represent whether the firm is high-tech or not and whether the firm belongs to a particular industry.

Furthermore, the life stage of the essential product serves as the starting point for our investigation into the many stages of the industry's life cycle. Since technology uncertainty, the ratio of sales, institution inefficiency, influence on governments, and environmental munificence all affect the adoption of green performance, we take it all up to the mark. Technology uncertainty was measured by a four-item scale that supported the work of Goulet. The ratio of sales was directly inspected. A 1–5 Likert scale measured institution inefficiency, influence on government, and environmental munificence.

### Reliability and validity

Firstly, to confirm reliability and validity came under a suitable threshold. An exploratory correlational analysis was carried out on all of the measurement scales by employing the principal component approach and the multidimensional



scaling, and the following five components were extracted: firm performance, ECSR, partnership restructure, dysfunctional competition, and industry power. Secondly, confirmatory correlational analysis was performed to assess the goodness of model fit. The brink was considered for the goodness of model fit (the ratio of X2 to a degree of freedom, also called CMIN or relative chi-square = 2.22, root mean error of approximation (RMSEA) = 0.06, comparative fit index (CFI) = 0.93, normed fit index (NFI) = 0.91, non-normed fit index (NNFI) = 0.95, incremental fit index (IFI) = 0.93. Moreover, Composite reliabilities were greater than the 0.7 threshold cutoff, indicating adequate reliability. As Fornell and Larcker (1981) suggested, 0.5 indicates a high level of convergent validity; during this research, the typical variation extraction for all constructs was above the suggested threshold.

### Common method variance

In order to decrease the possibility of common method variation, we adopted ex-ante procedures. (Podsakoff et al. 2003). The independent and dependent variables were divided into their respective parts at the beginning of the survey. Other top managers in a single firm completed different parts. The common method's variation attributing source was greatly restricted. As a result, the likelihood of a common method was not an issue in our study.

### Data analysis and results

During this research, we performed multivariate analysis, revealing both moderating and mediating relationships (Baron and Kenny 1986). The referred table for results is Table No. 1. Multicollinearity was decreased by managing all variables because of the mean center and interaction terms (Aiken et al. 1991). Within the model analysis, the variance inflation factors were kept below 2.1, which is extremely low compared to the cutoff value of 10.

### Regression results

The first regression analysis for (H1) was performed to determine the relationship between ECSR and partnership restructuring. We predicated a significant relationship between ECSR and partnership restructuring; the following can be seen in model 2, where ECSR positively affects partnership restructuring ( $\beta$  0.388,  $p < 0.01$ ). Therefore, (H1) is strongly supported in our study.

The second regression analysis was performed on (H2) to detect the moderating effect of dysfunctional competition intra-ECSR and Partnership restructuring. Model 3, seen as a coefficient of interaction, indicated that dysfunctional

competition showed a negative relationship between ECSR and partnership restructure ( $\beta$  -0.285,  $p < 0.01$ ). Therefore, (H2) is strongly backed up in this study since dysfunctional competition weakened the relationship between ECSR and partnership restructuring (Table 2).

The fifth regression analysis for (H5) examined the relationship between partnership restructure and firm performance. Per our predictions, the relationship between partnership restructures and firm performance proved to be positively significant. Model 7 indicated a significant relationship between partnership restructure and firm performance ( $\beta$  0.241,  $p < 0.01$ ). Therefore, we could strongly support (H5) in the study.

The third regression analysis for (H3) was performed to correlate the moderating effect of industry power between ECSR and partnership restructure. Model 4 indicated that the coefficient of interaction in industry power has a negative relationship between ECSR and partnership restructures ( $\beta$  0.188,  $p < 0.05$ ). Therefore, we conclude that (H3) was supported; industry power weakened the relationship between ECSR and partnership restructure.

The fourth regression for (H4) was employed to test the relationship between ECSR and firm performance. It has statistically been proved that there is a positive relationship between ECSR and firm performance. In model 6, the link between ECSR and firm performance was positively significant ( $\beta$  0.176,  $p < 0.05$ ). Hence, (H4) is supported in our study (Table 3).

Finally, to attest to the mediating effect of partnership restructuring between ECSR and firm performance, Baron and Kenny (1986) suggested a particular procedure to be implied. In models 2 and 3, results indicated that ECSR positively affected partnership restructuring. Thirdly, in model 7, the positive relationship between partnership restructuring and firm performance was significant. Fourthly, when partnership restructuring was added with ECSR in model 5, the coefficient of ECSR was found to be insignificant. The Sobel test was conducted to examine the positive, indirect mediating effect of ECSR on firm performance through partnership restructures. Our results show that the mediating impact of partnership restructures significantly positive. Therefore, we conclude that partnership restructures positively mediate the link between ECSR and firm performance (Figs. 2 and 3).

### Discussion of findings

In this research study, some significant empirical evidence shows an interesting mechanism among proposed variables. In previous studies, CSR and firm performance were widely studied research topics, but most recently, ECSR has been given great intention because of environmental issues associated with a firm overall performance. Our study finds a positive relationship between ECSR and firm performance.

**Table 2** Descriptive statistics and correlation matrix

	Mean	Medium	SD	ECSR	DC	EP	PR	FP	Age	Size	C&P	IM	F&T	SE	IE	RM
Environmental CSR	3.951	3.765	0.734	1												
Dysfunctional competition	3.212	3.117	0.641	0.013	1											
Industry power	4.102	3.843	0.729	0.397**	0.034	1										
Partnership restructure	3.691	3.573	0.752	0.372**	-0.002	0.354**	1									
Firm performance	3.384	3.297	0.819	0.229**	-0.204**	0.235**	0.312**	1								
Firm age (Ln)	2.401	2.298	1.523	-0.170*	0.100	0.065	-0.048	-0.020	1							
Firm size (Ln)	5.356	5.285	1.498	-0.141*	0.002	0.141*	0.025	0.039	0.640**	1						
Chemical and pharmaceutical	2.302	2.011	0.605	0.039	0.019	-0.089	-0.014	0.006	-0.060	-0.064	1					
Instrument manufacturing	0.812	0.756	0.399	-0.138*	-0.041	-0.110	-0.087	-0.002	0.117	0.001	-0.163*	1				
Food and textile	2.879	2.175	0.588	0.024	-0.202**	0.024	-0.024	0.050	0.011	0.121	-0.107	-0.095	1			
Special equipment	3.989	3.543	0.794	0.012	0.048	0.085	-0.049	-0.078	0.021	0.083	-0.194**	-0.172*	-0.113	1		
Institutional environment	4.657	3.786	0.949	0.075	-0.070	0.021	0.046	0.272**	-0.260**	-0.262**	0.019	-0.045	-0.036	0.056	1	
Resource munificence	1.675	1.294	0.632	0.286**	-0.144*	0.199**	0.283**	0.353**	-0.058	0.037	-0.007	-0.042	-0.031	-0.035	0.167*	1

\*\* Correlation is significant at the 0.01 level (2-tailed)

\* Correlation is significant at the 0.05 level (2-tailed)

Similar findings by Javed et al. (2020) show that ESCR positively impacts a firm financial performance. The study argues that companies with better ESCR performance are more likely to have better financial performance. Moreover, ESCR can lead to increased trust, improved reputation, better communication, and improved collaboration, leading to improved financial performance and higher stock returns.

Furthermore, our study found a positive relationship between ECSR and partnership restructuring. Our findings are consistent with the study of Al-Tabbaa et al. (2019), who found that companies with higher levels of ESCR are more likely to form partnerships with firms that focus more on environmental issues. The study suggests that companies with higher levels of ESCR are seen as more trustworthy and reliable partners and that these partnerships can lead to improved performance.

Moreover, secondly, within the theoretical framework, two moderating variables included dysfunctional competition and industry power. Both variables' impacts were investigated to examine their moderation with partnership restructure and ESCR. The impact of dysfunctional competition weakens the link between ECSR and Partnership restructure. A study similar to Wei et al. (2017) defined a moderating effect of dysfunctional competition on the relationship between ECSR and firm performance when dysfunctional competition weakens the link between these two concepts by making companies less likely to focus on social and environmental responsibility and more focused on winning at all costs. Furthermore, dysfunctional competition is where firms take unfair advantage of the competition and do not consider ECSR their responsibility; they merely consider getting more benefits without considering environmental issues. As such, partnership restructuring is necessary to manage the dysfunctional competition of firms. Likewise, industry power creates an identical situation between ECSR and partnership restructuring. The effect of industry power weakens the connection between ECSR and partnership restructure. The finding is consistent with the study of Broadstock et al. (2020), as they found that increased power in the industry negatively impacts the firms' overall performance. Therefore, controlling among industries is vital so ESCR activities can positively influence performance. As per this empirical study, these assumptions were extended and proved statistically.

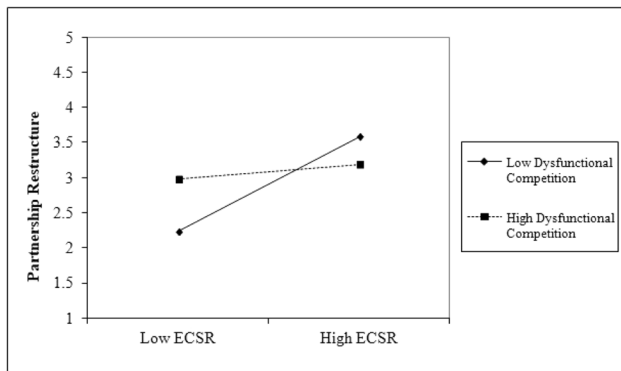
### Theoretical contribution

Nowadays, firms strive to conduct profitable operations in competitive business environments. However, environmental issues have not been considered very seriously among many business firms and cause significant harm to ecological sustainability. They were considering environmental corporate social responsibility and its impact on firm performance.

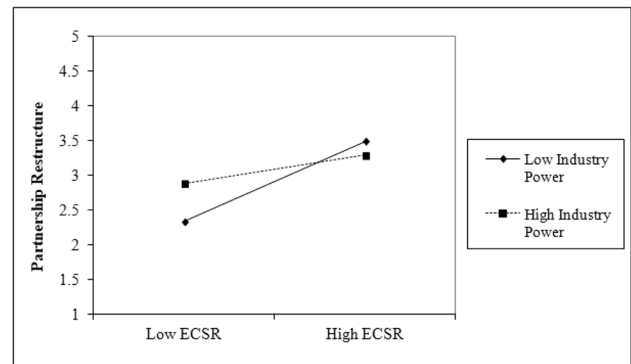
**Table 3** Regression analysis results

Dependent variable	Model 1 Partnership restructure	Model 2 Partnership restructure	Model 3 Partnership restructure	Model 4 Partnership restructure	Model 5 Firm performance	Model 6 Firm performance	Model 7 Firm per- formance
<b>Controls</b>							
1) Firm age	-0.116	-0.125	-0.73	-0.084	-0.065	-0.053	-0.068
2) Firm size	0.068	0.138	0.104	0.110	0.270*	0.293*	0.278*
3) Chemical and pharmaceuti- cal	-0.027	-0.010	0.000	-0.018	-0.062	-0.069	-0.083
4) Instrument manufacturing	-0.092	-0.055	-0.004	-0.043	0.030	0.015	0.017
5) Food and textile	-0.090	-0.118	-0.127+	-0.115	0.039	0.041	0.016
6) Special equipment	-0.179*	-0.085	-0.059	-0.107	-0.208*	-0.194*	-0.173*
7) Institutional environment	0.035	0.041	0.019	0.036	0.247*	0.246	0.235
8) Resource Munificence	0.166**	0.044	0.046	0.049	0.192**	0.159	0.128*
<b>Main effect</b>							
9) Environmental CSR (ECSR)		<b>H1</b> 0.388**	0.453**	0.371**		<b>H4</b> 0.176*	0.141*
10) Partnership restructure							<b>H5</b> 0.241**
11) Dysfunctional competition			0.088	-0.061			
12) Industry power			0.090	0.204**			
<b>Interaction effects</b>							
13) Dysfunctional competition ECSR			<b>H2</b> -0.285**				
14) Industry power ECSR				<b>H3</b> -0.188**			
R <sup>2</sup>	0.224	0.280	0.342	0.307	0.360	0.384	0.431
Adjusted R <sup>2</sup>	0.129	0.185	0.246	0.200	0.286	0.308	0.347
F value	2.344	2.965	3.541	2.864	4.858	5.064	5.152

+  $p < 0.10$ , \*  $p < 0.05$ , \*\*  $p < 0.01$  was considered under one-tailed and two-tailed level of significance



**Fig. 2** Dysfunctional competition played a moderating role between partnership restructure and ECSR



**Fig. 3** Industrial power moderated between partnership restructure and ECSR

This study has observed if ECSR indirectly impacts firm performance through partnership restructuring in dysfunctional competition and industry power. During this empirical study, we observed that ECSR affects partnership restructure pursued by firm performance. The positive effect of ECSR on partnership restructure weakens when dysfunctional competition and industry power increase.

During this empirical study, two crucial theoretical contributions increase the literature on CSR. Firstly, partnership restructures positively mediate between ECSR and firm performance. As partnership restructure could be a newly developed variable during this study, no prior research supports what we have claimed. Although, results have broadly supported our claim. Therefore, constructing a replacement

variable is a significant contribution of this paper and can extend the literature on partnership restructure.

Moreover, the central motive of this paper is environmental corporate social responsibility. However, other areas could be included to increase the research scope, like employer relations, corporate governance, and social community involvement, strongly supporting the firms' morality for stakeholders (Godfrey et al. 2009). Consequently, other CSR factors may adequately improve firms' partnership restructure and indirectly influence the firm's overall performance. So it will be a critical step to research CSR to specialize indirect effects and essential processes for CSR efficacy. In addition, the theoretical framework was developed in China, and data was collected from Chinese firms. Vigorously, the findings will be implemented in emerging economies and countries with highly dysfunctional competition practices. It can periodically benefit the firms, significantly contradictory, and this may ultimately sacrifice the long-term firm performance and environmental sustainability.

### Managerial implications

This empirical study highlighted several managerial implications for governments and corporations. China's rapid economic process has challenged the natural ecosystem and posed a significant threat to environmental sustainability. Heavy fog and haze have drawn severe social and ecological issues (Stefan and Paul 2008). Conserving the balance between the environment and economic processes in China could be a pressing issue. Advancing the methods for ECSR and its performance has adequate managerial benefits for China. This study has significant practical implications for Chinese managers; the research findings head China towards innovation. The Chinese should consider controlling activities for their firms that are harmful to the environment, which minimizes performance. Furthermore, managers should target the indirect role of CSR in promoting the company's success. Managers also deem ECSR a charitable activity that embodies the person and society.

### Conclusion

This research has contributed to the success of manufacturing companies with ECSR. This study aims to inspire businesses to partner with ECSR on corporate results. Much research has been done to date, but none focused on ECSR and company success with the mediating impact of partnership restructuring and moderating effects of dysfunctional competition and industry power. Therefore, these variables

are collectively studied and investigated in this research study.

### Policy recommendations

Based on the findings, this study offers some essential policy recommendations for companies and policymakers to consider, such as the following:

- 1) Encourage companies to adopt ECSR practices: By promoting ECSR practices, companies can improve their partnerships and, ultimately, their financial performance. This can be done through incentives such as tax breaks or subsidies for companies that engage in ECSR activities.
- 2) Support the formation of partnerships: Companies that engage in ECSR practices can benefit from forming partnerships with other companies. Therefore, policymakers should create an environment that supports partnerships by providing funding for research and development or by creating a legal framework that facilitates partnerships.
- 3) Monitor the power of industries: It is crucial to monitor the power of industries to ensure that they are not engaging in dysfunctional competition. This can be done by creating regulations limiting monopolistic practices and enforcing antitrust laws.
- 4) Encourage transparency and reporting: Companies should disclose their ECSR practices and performance through regular reporting mechanisms. This will enable stakeholders, including investors and consumers, to hold companies accountable for their actions and make informed decisions about their engagement with the companies (Işık et al. 2020).
- 5) Encourage collaboration and cooperation: Encourage companies to collaborate and cooperate to achieve common goals related to ECSR. This can be done through initiatives such as industry-wide sustainability programs or partnerships between companies in different sectors.
- 6) Virtual collaboration: Due to the COVID-19 pandemic, companies increasingly rely on virtual collaboration to form partnerships. To support this, policymakers should invest in developing digital platforms and tools that facilitate virtual collaboration and communication.
- 7) Sustainable recovery: To support the economy's recovery from the COVID-19 pandemic, policymakers should invest in sustainable infrastructure and industries that promote ECSR. This will not only create jobs but also support the development of sustainable business practices (Irfan et al. 2022).

In summary, these policy recommendations aim to promote ECSR practices, support the formation of partnerships, monitor the power of industries, encourage transparency and

reporting, and encourage collaboration and cooperation. Implementing these policies can help companies improve their partnerships and financial performance while promoting more sustainable and responsible business practices. Furthermore, future recommendations aim to support companies during the COVID-19 pandemic by promoting virtual collaboration and sustainable recovery (Ahmad et al. 2021a, b; Sharif et al. 2020). Implementing these policies can help companies adapt to the uncertainty caused by the pandemic and improve their partnerships, ultimately, their financial performance while promoting more sustainable and responsible business practices.

### Limitations and future research

Even though several contributions were addressed, some limitations still have to be highlighted for future research to realize profound outcomes. Some limitations of this study are derived from the empirical context. The sample was collected from different firms; however, all firms cannot be included as various firms have different natures and ethics. Since the study has broadly supported the Chinese context, results cannot be fully generalized. There are various legal environments considering emerging and developed economies, and this study's findings must be carefully implemented.

Moreover, an off-the-cuff interpretation of its empirical findings is not allowed, thanks to cross-sectional data. We will highlight central issues if we consider a longitudinal approach in future research. Numerous factors are included within the prospective study to enhance firm performance and correlate with the ECSR phenomena.

**Author contribution** Five authors have contributed to the study. Zohaib Mukhdoom Hussain: developed the contextual framework of the study and prepared the original draft. Yongqiang Gaon: reviewed and enhanced the quality of the initial draft. Xi Song: helped in the data collection process and performed data scanning. Wali Muhammad Khoso: helped develop the initial draft and performed proofreading formalities. Zulfiqar Ali Baloch: Final revision, quality assurance, and critical suggestions for the overall enhancement.

**Data availability** The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

### Declarations

**Ethics approval and consent to participate** Not applicable.

**Consent for publication** Not applicable.

**Competing interests** The authors declare no competing interests.

## References

- Adamkaite J, Streimikiene D, Rudzioniene K (2023) The impact of social responsibility on corporate financial performance in the energy sector: evidence from Lithuania. *Corporate social responsibility and environmental management*
- Ahmad M, Akhtar N, Jabeen G, Irfan M, Khalid Anser M, Wu H, İşık C (2021a) Intention-based critical factors affecting willingness to adopt Novel Coronavirus prevention in Pakistan: implications for future pandemics. *Int J Environ Res Public Health* 18(11):6167
- Ahmad M, İşık C, Jabeen G, Ali T, Ozturk I, Atchike DW (2021b) Heterogeneous links among urban concentration, non-renewable energy use intensity, economic development, and environmental emissions across regional development levels. *Sci Total Environ* 765:144527
- Aiken LS, West SG, Reno RR (1991) *Multiple regression: testing and interpreting interactions*. sage
- Al-Tabbaa O, Leach D, Khan Z (2019) Examining alliance management capabilities in cross-sector collaborative partnerships. *J Bus Res* 101:268–284
- Anser MK, Usman M, Godil DI, Shabbir MS, Sharif A, Tabash MI, Lopez LB (2021) Does globalization affect the green economy and environment? The relationship between energy consumption, carbon dioxide emissions, and economic growth. *Environ Sci Pollut Res* 28(37):51105–51118
- Barnea A, Rubin A (2010) Corporate social responsibility as a conflict between shareholders. *J Bus Ethics* 97(1):71–86
- Barney J (1991) Firm resources and sustained competitive advantage. *J Manag* 17(1):99–120
- Baron RM, Kenny DA (1986) The moderator–mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *J Pers Soc Psychol* 51(6):1173
- Baum JA, Oliver C (1991) Institutional linkages and organizational mortality. *Administrative science quarterly* 187–218
- Boso N, Adeola O, Danso A, Assadina S (2019) The effect of export marketing capabilities on export performance: moderating role of dysfunctional competition. *Ind Mark Manage* 78:137–145
- Broadstock DC, Matousek R, Meyer M, Tzeremes NG (2020) Does corporate social responsibility impact firms' innovation capacity? The indirect link between environmental & social governance implementation and innovation performance. *J Bus Res* 119:99–110
- Buysse K, Verbeke A (2003) Proactive environmental strategies: a stakeholder management perspective. *Strateg Manag J* 24(5):453–470
- Cai L, Chen B, Chen J, Bruton GD (2017) Dysfunctional competition & innovation strategy of new ventures as they mature. *J Bus Res* 78:111–118
- Calantone RJ, Cavusgil ST, Zhao Y (2002) Learning orientation, firm innovation capability, and firm performance. *Ind Mark Manage* 31(6):515–524
- Castellucci F, Ertug G (2010) What's in it for them? Advantages of higher-status partners in exchange relationships. *Acad Manag J* 53(1):149–166
- Chandy RK, Tellis GJ (2000) The incumbent's curse? Incumbency, size, and radical product innovation. *J Mark* 64(3):1–17
- Cheng B, Ioannou I, Serafeim G (2014) Corporate social responsibility and access to finance. *Strateg Manag J* 35(1):1–23
- Child J, Tsai T (2005) The dynamic between firms' environmental strategies and institutional constraints in emerging economies: evidence from China and Taiwan. *J Manage Stud* 42(1):95–125
- 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. *J Bus Ethics* 150(4):991–1009

- Connelly BL, Certo ST, Ireland RD, Reutzel CR (2011) Signaling theory: a review and assessment. *J Manag* 37(1):39–67
- D'Aveni RA, Dagnino GB, Smith KG (2010) The age of temporary advantage. *Strateg Manag J* 31(13):1371–1385
- Das S, Sen PK, Sengupta S (1998) Impact of strategic alliances on firm valuation. *Acad Manag J* 41(1):27–41
- Das TK, Teng B-S (2000) A resource-based theory of strategic alliances. *J Manag* 26(1):31–61
- Deng QS, Alvarado R, Cuesta L, Tillaguango B, Murshed M, Rehman A, Işık C, López-Sánchez M (2022) Asymmetric impacts of foreign direct investment inflows, financial development, and social globalization on environmental pollution. *Econ Anal Policy* 76:236–251
- Dickson PR (1992) Toward a general theory of competitive rationality. *J Mark* 56(1):69–83
- Dixon-Fowler HR, Slater DJ, Johnson JL, Ellstrand AE, Romi AM (2013) Beyond “does it pay to be green?” A meta-analysis of moderators of the CEP–CFP relationship. *J Bus Ethics* 112:353–366
- Du Y, Kim PH, Aldrich HE (2016) Hybrid strategies, dysfunctional competition, and new venture performance in transition economies. *Manag Organ Rev* 12(3):469–501
- Eisenhardt KM, Martin JA (2000) Dynamic capabilities: what are they? *Strateg Manag J* 21(10–11):1105–1121
- European Commission (2011) Communication from the commission to the european parliament, the council, the european economic and social committee and the committee of the regions. <https://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0933:FIN:EN:PDF>
- Feng H, Morgan NA, Rego LL (2015) Marketing department power and firm performance. *J Mark* 79(5):1–20
- Feng M, Wang X, Kreuze JG (2017) Corporate social responsibility and firm financial performance: comparison analyses across industries and CSR categories. *Am J Bus*
- Fijałkowska J, Zyznarska-Dworczak B, Garszka P (2018) Corporate social-environmental performance versus financial performance of banks in Central and Eastern European countries. *Sustainability* 10(3):772
- Flammer C (2013) Corporate social responsibility and shareholder reaction: the environmental awareness of investors. *Acad Manag J* 56(3):758–781
- Godfrey PC, Merrill CB, Hansen JM (2009) The relationship between corporate social responsibility and shareholder value: an empirical test of the risk management hypothesis. *Strateg Manag J* 30(4):425–445
- Habaragoda B (2018) Corporate social responsibility (CSR) and firm performance: impact of internal and external CSR on financial performance. *Bus Manag* 10(3):156–170
- Han S, Nanda VK, Silveri S (2016) CEO power and firm performance under pressure. *Financ Manage* 45(2):369–400
- Hart SL (1995) A natural-resource-based view of the firm. *Acad Manag Rev* 20(4):986–1014
- Hitt MA, Dacin MT, Levitas E, Arregle J-L, Borza A (2000) Partner selection in emerging and developed market contexts: resource-based and organizational learning perspectives. *Acad Manag J* 43(3):449–467
- Ho J, Lu C, Lucianetti L (2021) Does engaging in corporate social responsibility activities influence firm performance? The moderating effects of risk preferences and performance measurement systems. *Manag Decis*
- Hsu K-T (2012) The advertising effects of corporate social responsibility on corporate reputation and brand equity: evidence from the life insurance industry in Taiwan. *J Bus Ethics* 109(2):189–201
- Hunt SD, Morgan RM (1995) The comparative advantage theory of competition. *J Mark* 59(2):1–15
- Irfan M, Salem S, Ahmad M, Acevedo-Duque Á, Abbasi KR, Ahmad F, Razzaq A, Işık C (2022) Interventions for the current COVID-19 pandemic: frontline workers' intention to use personal protective equipment. *Front Public Health* 9:2368
- Işık C, Aydın E, Dogru T, Rehman A, Alvarado R, Ahmad M, Irfan M (2021) The nexus between team culture, innovative work behaviour and tacit knowledge sharing: theory and evidence. *Sustainability* 13(8):4333
- Işık C, Kasımatı E, Ongan S (2017) Analyzing the causalities between economic growth, financial development, international trade, tourism expenditure and/on the CO2 emissions in Greece. *Energy Sour B* 12(7):665–673
- Işık C, Ongan S, Bulut U, Karakaya S, Irfan M, Alvarado R, Ahmad M, Rehman A (2022) Reinvestigating the Environmental Kuznets Curve (EKC) hypothesis by a composite model constructed on the Armey curve hypothesis with government spending for the US States. *Environ Sci Pollut Res* 29(11):16472–16483
- Işık C, Sirakaya-Turk E, Ongan S (2020) Testing the efficacy of the economic policy uncertainty index on tourism demand in USMCA: theory and evidence. *Tour Econ* 26(8):1344–1357
- Iwu-Egwuonwu D, Chibuike R (2010) Does corporate social responsibility (CSR) impact on firm performance? A literature evidence. Ronald Chibuike, *Does Corporate Social Responsibility (CSR) Impact on Firm Performance*
- Javed M, Rashid MA, Hussain G, Ali HY (2020) The effects of corporate social responsibility on corporate reputation and firm financial performance: moderating role of responsible leadership. *Corp Soc Responsib Environ Manag* 27(3):1395–1409
- Jean RJB, Sinkovics RR, Hiebaum TP (2014) The effects of supplier involvement and knowledge protection on product innovation in customer–supplier relationships: a study of global automotive suppliers in China. *J Prod Innov Manag* 31(1):98–113
- Jo H, Na H (2012) Does CSR reduce firm risk? Evidence from controversial industry sectors. *J Bus Ethics* 110(4):441–456
- Khan A, Li C, Shahzad M, Sampene AK (2022) Green effectual orientations to shape environmental performance through green innovation and environmental management initiatives under the influence of CSR commitment. *Environ Sci Pollut Res* 1–13
- Khan MK, Abbas F, Godil DI, Sharif A, Ahmed Z, Anser MK (2021) Moving towards sustainability: how do natural resources, financial development, and economic growth interact with the ecological footprint in Malaysia? A dynamic ARDL approach. *Environ Sci Pollut Res* 28(39):55579–55591
- Kim D, Cavusgil E (2020) Antecedents and outcomes of digital platform risk for international new ventures' internationalization. *J World Bus* 55(1):101021
- Kim EH (2013) Deregulation and differentiation: incumbent investment in green technologies. *Strateg Manag J* 34(10):1162–1185
- Kim J, Park K (2018) Effect of the clean development mechanism on the deployment of renewable energy: less developed vs. well-developed financial markets. *Energy Econ* 75:1–13
- Kong X, Pan Y, Sun H, Taghizadeh-Hesary F (2020) Can environmental corporate social responsibility reduce firms' idiosyncratic risk? Evidence from China. *Front Environ Sci* 8:608115
- Kraaijenbrink J, Spender J-C, Groen AJ (2010) The resource-based view: a review and assessment of its critiques. *J Manag* 36(1):349–372
- Lane PJ, Lubatkin M (1998) Relative absorptive capacity and interorganizational learning. *Strateg Manag J* 19(5):461–477
- Lee J (2009) Does size matter in firm performance? Evidence from US public firms. *Int J Econ Bus* 16(2):189–203
- Leischning A, Geigenmüller A (2018) When does alliance proactiveness matter to market performance? A comparative case analysis. *Ind Mark Manage* 74:79–88

- Li H, Atuahene-Gima K (2001) Product innovation strategy and the performance of new technology ventures in China. *Acad Manag J* 44(6):1123–1134
- Li H, Li J (2009) Top management team conflict and entrepreneurial strategy making in China. *Asia Pac J Manag* 26(2):263–283
- Li Y, Li PP, Liu Y, Yang D (2010) Learning trajectory in offshore OEM cooperation: transaction value for local suppliers in the emerging economies. *J Oper Manag* 28(3):269–282
- Lim B-C, Ployhart RE (2004) Transformational leadership: relations to the five-factor model and team performance in typical and maximum contexts. *J Appl Psychol* 89(4):610
- Lin Z, Yang H, Demirkan I (2007) The performance consequences of ambidexterity in strategic alliance formations: empirical investigation and computational theorizing. *Manage Sci* 53(10):1645–1658
- Liu W, Atuahene-Gima K (2018) Enhancing product innovation performance in a dysfunctional competitive environment: the roles of competitive strategies and market-based assets. *Ind Mark Manage* 73:7–20
- Lu X, Zhang H, Ni Y, Zhang Q, Chen J (2008) Porous nanosheet-based ZnO microspheres for the construction of direct electrochemical biosensors. *Biosens Bioelectron* 24(1):93–98
- Luo A-L, Zhang H-T, Zhao Y-H, Zhao G, Cui X-Q, Li G-P, Chu Y-Q, Shi J-R, Wang G, Zhang J-N (2012) Data release of the LAM-OST pilot survey. *Res Astron Astrophys* 12(9):1243
- Marquis C, Qian C (2014) Corporate social responsibility reporting in China: symbol or substance? *Organ Sci* 25(1):127–148
- Matsumura EM, Prakash R, Vera-Munoz SC (2014) Firm-value effects of carbon emissions and carbon disclosures. *Account Rev* 89(2):695–724
- Mazurkiewicz P (2004) Corporate environmental responsibility: is a common CSR framework possible. *World Bank* 2(1):1–18
- McQuitty S (2004) Statistical power and structural equation models in business research. *J Bus Res* 57(2):175–183
- McWilliams A, Siegel D (2001) Corporate social responsibility: a theory of the firm perspective. *Acad Manag Rev* 26(1):117–127
- Orlitzky M, Benjamin JD (2001) Corporate social performance and firm risk: a meta-analytic review. *Bus Soc* 40(4):369–396
- Osborn RN, Hagedoorn J (1997) The institutionalization and evolutionary dynamics of interorganizational alliances and networks. *Acad Manag J* 40(2):261–278
- Park D, Zeikus J (2002) Impact of electrode composition on electricity generation in a single-compartment fuel cell using *Shewanella putrefaciens*. *Appl Microbiol Biotechnol* 59(1):58–61
- Pata UK, Isik C (2021) Determinants of the load capacity factor in China: a novel dynamic ARDL approach for ecological footprint accounting. *Resour Policy* 74:102313
- Peng H (2013) Why and when do people hide knowledge? *Journal of knowledge management*. [Record #62 is using a reference type undefined in this output style]
- Peng MW, Delios A (2006) What determines the scope of the firm over time and around the world? An Asia Pacific perspective. *Asia Pac J Manag* 23:385–405
- Peng MW, Sun SL, Pinkham B, Chen H (2009) The institution-based view as a third leg for a strategy tripod. *Acad Manag Perspect* 23(3):63–81
- Podolny JM (1993) A status-based model of market competition. *Am J Sociol* 98(4):829–872
- Podolny JM (1994) Market uncertainty and the social character of economic exchange. *Adm Sci Q* 45:48–83
- Podsakoff PM, MacKenzie SB, Lee J-Y, Podsakoff NP (2003) Common method biases in behavioral research: a critical review of the literature and recommended remedies. *J Appl Psychol* 88(5):879
- Porter ME (1979) The structure within industries and companies' performance. *Rev Econ Stat* 214–227
- Rahman N, Post C (2012) Measurement issues in environmental corporate social responsibility (ECSR): toward a transparent, reliable, and construct valid instrument. *J Bus Ethics* 105(3):307–319
- Razzaq A, Sharif A, Ozturk I, Skare M (2022) Inclusive infrastructure development, green innovation, and sustainable resource management: evidence from China's trade-adjusted material footprints. *Resour Policy* 79:103076
- Salaam T (2017) National Bureau of Statistics. NBS (National Bureau of Statistics) and MOFP
- Salama A, Anderson K, Toms JS (2011) Does community and environmental responsibility affect firm risk? Evidence from UK panel data 1994–2006. *Bus Ethics: A Eur Rev* 20(2):192–204
- Salim N, Ab Rahman MN, Abd Wahab D (2019) A systematic literature review of internal capabilities for enhancing eco-innovation performance of manufacturing firms. *J Clean Prod* 209:1445–1460
- Saqib N, Sharif A, Razzaq A, Usman M (2022) Integration of renewable energy and technological innovation in realizing environmental sustainability: the role of human capital in EKC framework. *Environ Sci Pollut Res* 1–14
- Sarkar A, Goh KK, Singh RP, Singh H (2009) Behaviour of an oil-in-water emulsion stabilized by  $\beta$ -lactoglobulin in an in vitro gastric model. *Food Hydrocolloids* 23(6):1563–1569
- Sarkar MB, Echambadi R, Cavusgil ST, Aulakh PS (2001) The influence of complementarity, compatibility, and relationship capital on alliance performance. *J Acad Mark Sci* 29(4):358–373
- Sengupta P (1998) Corporate disclosure quality and the cost of debt. *Account Rev* 459–474
- Sharif A, Aloui C, Yarovaya L (2020) COVID-19 pandemic, oil prices, stock market, geopolitical risk and policy uncertainty nexus in the US economy: fresh evidence from the wavelet-based approach. *Int Rev Financ Anal* 70:101496
- Sheng S, Zhou KZ, Li JJ (2011) The effects of business and political ties on firm performance: evidence from China. *J Mark* 75(1):1–15
- Sheng Z, Yang S, Yu Y, Vasilakos AV, McCann JA, Leung KK (2013) A survey on the ietf protocol suite for the internet of things: standards, challenges, and opportunities. *IEEE Wirel Commun* 20(6):91–98
- Sinha A, Mishra S, Sharif A, Yarovaya L (2021) Does green financing help to improve environmental & social responsibility? Designing SDG framework through advanced quantile modeling. *J Environ Manage* 292:112751
- Smirnova MM (2020) Managing business and social network relationships in Russia: the role of relational capabilities, institutional support and dysfunctional competition. *Ind Mark Manage* 89:340–354
- Song W, Yu H (2018) Green innovation strategy and green innovation: the roles of green creativity and green organizational identity. *Corp Soc Responsib Environ Manag* 25(2):135–150
- Sørensen JB (2002) The strength of corporate culture and the reliability of firm performance. *Adm Sci Q* 47(1):70–91
- Stefan A, Paul L (2008) Does it pay to be green? A systematic overview. *Acad Manag Perspect* 22(4):45–62
- Stuart TE, Hoang H, Hybels RC (1999) Interorganizational endorsements and the performance of entrepreneurial ventures. *Adm Sci Q* 44(2):315–349
- Suki NM, Suki NM, Sharif A, Afshan S, Rexhepi G (2022) Importance of green innovation for business sustainability: identifying the key role of green intellectual capital and green SCM. *Bus Strategy Environ*
- Tencati A, Perrini F, Pogutz S (2004) New tools to foster corporate socially responsible behavior. *J Bus Ethics* 53(1):173–190

- Tzouvanas P, Kizys R, Tsend-Ayush B (2020) Momentum trading in cryptocurrencies: short-term returns and diversification benefits. *Econ Lett* 191:108728
- Walker K, Ni N, Huo W (2014) Is the red dragon green? An examination of the antecedents and consequences of environmental proactivity in China. *J Bus Ethics* 125(1):27–43
- Walley N, Whitehead B (1994) It's not easy being green. *Reader Bus Environ* 36(81):4
- Wang C-H (2011) The moderating role of power asymmetry on the relationships between alliance and innovative performance in the high-tech industry. *Technol Forecast Soc Chang* 78(7):1268–1279
- Wang C, Zhang Q, Zhang W (2020) Corporate social responsibility, Green supply chain management and firm performance: the moderating role of big-data analytics capability. *Res Transp Bus Manag* 37:100557
- Wang S, Wei Z, Song X, Na S, Ye J (2021) When does environmental corporate social responsibility promote managerial ties in China? The moderating role of industrial power and market hierarchy. In *Corporate Performance and Managerial Ties in China* (pp. 114–134). Routledge
- Wei Y, McGrath PJ, Hayden J, Kutcher S (2015) Mental health literacy measures evaluating knowledge, attitudes and help-seeking: a scoping review. *BMC Psychiatry* 15(1):1–20
- Wei Z, Shen H, Zhou KZ, Li JJ (2017) How does environmental corporate social responsibility matter in a dysfunctional institutional environment? Evidence from China. *J Bus Ethics* 140(2):209–223 (**[Record #96 is using a reference type undefined in this output style]**)
- Xu T, Yang J, Zhang F, Guo W (2021) Interfirm cooperation, interfirm knowledge creation, and collaborative innovation performance: the moderating roles of environmental competitiveness and dysfunctional competition. *Ind Mark Manage* 99:123–135
- Yang D, Wang AX, Zhou KZ, Jiang W (2019) Environmental strategy, institutional force, and innovation capability: a managerial cognition perspective. *J Bus Ethics* 159(4):1147–1161
- Zhang LL, Yan Liu D, Ma LQ, Luo ZD, Cao TB, Zhong J, Yan ZC, Wang LJ, Zhao ZG, Zhu SJ (2007) Activation of transient receptor potential vanilloid type-1 channel prevents adipogenesis and obesity. *Circ Res* 100(7):1063–1070
- Zhang S, Wang Z, Zhao X, Zhang M (2017) Effects of institutional support on innovation and performance: roles of dysfunctional competition. *Ind Manag Data Syst*
- Zhao C, Song H, Chen W (2016) Can social responsibility reduce operational risk: empirical analysis of Chinese listed companies. *Technol Forecast Soc Chang* 112:145–154
- Zhao Y, Liu D, Zhang W, Chen S (2021) Top management service commitment and new product development in manufacturing firms: the moderating role of dysfunctional competition. *J Bus Ind Mark*
- Zhou KZ, Poppo L (2010) Exchange hazards, relational reliability, and contracts in China: the contingent role of legal enforceability. *J Int Bus Stud* 41(5):861–881
- Zhou P, Arndt F, Jiang K, Dai W (2021) Looking backward and forward: political links and environmental corporate social responsibility in China. *J Bus Ethics* 169(4):631–649
- Zhu Q, Sarkis J (2004) Relationships between operational practices and performance among early adopters of green supply chain management practices in Chinese manufacturing enterprises. *J Oper Manag* 22(3):265–289
- Zukin S, DiMaggio P (1990) Structures of capital: the social organization of the economy (Vol. 36). Cambridge University Press Cambridge

**Publisher's note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Springer Nature or its licensor (e.g. a society or other partner) holds exclusive rights to this article under a publishing agreement with the author(s) or other rightsholder(s); author self-archiving of the accepted manuscript version of this article is solely governed by the terms of such publishing agreement and applicable law.