Insights into rising environmental concern: prompt corporate social responsibility to mediate green marketing perspective

Mo Zhang, Phan The Cong, Shouvik Sanyal, Wanich Suksatan, Apichit Maneengam & Natasha Murtaza

To cite this article: Mo Zhang, Phan The Cong, Shouvik Sanyal, Wanich Suksatan, Apichit Maneengam & Natasha Murtaza (2022) Insights into rising environmental concern: prompt corporate social responsibility to mediate green marketing perspective, Economic Research-Ekonomska Istraživanja, 35:1, 5097-5113, DOI: 10.1080/1331677X.2021.2021966

To link to this article: https://doi.org/10.1080/1331677X.2021.2021966

© 2022 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

Published online: 04 Jan 2022.

Article views: 2483

View Crossmark data

Citing articles: 8 View citing articles
Insights into rising environmental concern: prompt corporate social responsibility to mediate green marketing perspective

Mo Zhang\textsuperscript{a}, Phan The Cong\textsuperscript{b}, Shouvik Sanyal\textsuperscript{c}, Wanich Suksatan\textsuperscript{d}, Apichit Maneengam\textsuperscript{e} and Natasha Murtaza\textsuperscript{f}

\textsuperscript{a}School of Science, Nanjing University of Posts and Telecommunications, Nanjing, China; \textsuperscript{b}Department of Economics, Thuongmai University, Hanoi, Vietnam; \textsuperscript{c}Department of Marketing and Entrepreneurship, Dhofar University, Sultanate of Oman; \textsuperscript{d}Faculty of Nursing, HRH Princess Chulabhorn College of Medical Science, Chulabhorn Royal Academy, Bangkok, Thailand; \textsuperscript{e}Department of Mechanical Engineering Technology, College of Industrial Technology, King Mongkut’s University of Technology North Bangkok, Bangkok, Thailand; \textsuperscript{f}University of Agriculture Faisalabad, Faisalabad, Pakistan

\textbf{ABSTRACT}

Green investment is a trending marketing strategy that has been endorsed as a prominent financial actor due to the growing environmental issues and business sustainability. With the introduction of green and climate bonds in the last decade, the investment in eco-friendly projects has been deemed a paradigm shift. China has been a pioneer in introducing green and climate bonds, setting a precedent for green investment in the global market. Following the green strategy, therefore, the main aim of this study is to examine the importance of green investment and green marketing for enhancing business performance. Besides, this study has also examined the critical mediating role of CSR. Data were collected from 619 respondents from Chinese manufacturing companies via questionnaires. This study employed the structural equation modeling (SEM) technique to test hypotheses in Smart PLS software. This study revealed that green marketing strategy and green investment positively complement the CSR of companies and their business performance. Moreover, results also showed that CSR plays a significant mediating role in enhancing business performance positively by stimulating the targeted relationships. With the ascendency of being environment friendly, this study will also be a powerful magnet for practitioners and policymakers.

\textbf{ARTICLE HISTORY}

Received 26 October 2021
Accepted 19 December 2021

\textbf{KEYWORDS}

Corporate social responsibility; green investment; green marketing; market orientation; business performance

\textbf{JEL CODES}

M14; E20; F20

1. Introduction

In the past few decades, green investment and Corporate Social Responsibility (CSR) has predominantly been used by several researchers across the globe. Previous
scholars define green investment as ‘a series of policy and institutional arrangements to attract private capital investments into green industries – such as environmental protection, energy conservation, and clean energy – through financial services’ (Liao & Shi, 2018; Pavlyk, 2020). On the other hand, CSR is a business model that supports a company to be socially accountable to itself, its stakeholders, and the public (Rangan et al., 2015). With the assumption of the industrial revolution since the 19th century, the problems relating to the environment have become unprecedentedly perceptible at the global level (O’Neill et al., 2020).

In light of this, the United Nations platform devised sustainable development goals (SDGs) to carry out such practices that reduce the otherwise imminent danger of environmental disaster (Ir fian et al., 2021; Sachs et al., 2019; Zhuang et al., 2021). The Sustainable development (SD) programs aim to encourage sustainable financing models for future goals. Under SDGs, the concept of the green economy and investment, as an amalgamated product of the economy, environment, and society, especially in the 21st century, has become a significant force for development in the modern era (Ding et al., 2019; Sachs et al., 2019; Sharif et al., 2019). As O’Neill et al. (2020) asserts, the conversion from a carbon economy to a green economy has led to low-carbon development in the aftermath of the climate change conference of Paris. Unlike the conventional economic model, the green economy emphasizes society and its relation to ecological conditions (Jinru et al., 2021; Martin & Moser, 2016; Sharif et al., 2020; Xuefeng et al., 2021). Green investment, by using environmental protection coupled with resource consumption, has led to the gain of attention of economic stakeholders and actors towards the conservation of the environment (Khan et al., 2021; Sharif et al., 2021). Han et al. (2020) stress the corresponding progress of economic units, environment, and society to eventually attain SD. It covers the formal method of utilizing financial tools in the services of green credit, green bonds, green development funds, green insurance, and appropriate strategy enticements to sustain the economy’s green revolution (Chiūmieia et al., 2021; Nawaz et al., 2021). Shuai and Fan (2020) reported, since 2013, the international green investment market has encountered considerable progress. Numerous studies have been conducted on green investment projects’ standards, pricing, and returns (Chariri et al., 2018; Pavlyk, 2020; Razzaq et al., 2021; Su, 2019).

Along with environmental hazards, the industrialists’ monopolization of the trade and economic sectors, taking care of their financial interests, and causing severe injury to both environment and labor in general, had caused an excruciating dilemma in the past century (Chien et al., 2021; Sun et al., 2021). Mirzoieva and Tomashevska (2020) note that this trend has led to the creation of labor associations and culture of strikes for non-compliance to their demands. The increase in fossil fuel burning and emissions of various hazardous gases results in global warming and climate change (Shahzad et al., 2021). CSR is the core factor that can enhance environmental and business performance. As per Rangan et al. (2015), the company tends to improve the social and ecological conditions without negatively affecting them. CSR is a comprehensive notion with the potential to perform multiple tasks depending upon the company and industry. Ali et al. (2017) note that such CRS programs can benefit society in the meantime improving their own business by philanthropy and other social welfare projects. To overcome this challenge, CSR was introduced to make
companies and industries more accountable for their social responsibilities (Rangan et al., 2015; Tamvada, 2020).

Another factor, which has predominantly affected the business performance in the past few decades, is the market orientation and the principle of demand and supply. Markets are run based on interests and return purposes (Ozkaya et al., 2015). Green marketing, in this regard, is a revolutionary concept which aims at changing the horizon of the global economy (Ozkaya et al., 2015). Indeed, green marketing orientation is another exciting topic nowadays. Market orientation can be put in a few words as the culture of any organization (Peattie, 2016). According to Kahlenborn (2017), green marketing is the same way as the culture and process of generating the policy plan according to the environmental needs of the time. To become successful in the market, companies should be noting dynamic requirements of the consumer, competitor, and environment (Ozkaya et al., 2015). By acknowledging the given factors, firms become capable of putting-forth policies to come across them and become successful in the market (Bukhari et al., 2017). Numerous previous research works have found that the association between green marketing and business performance is constructive (Kasayanond, 2019; Mukonza & Swarts, 2020). Boons and Lüdeke-Freund (2013) contend that business and society discourses should classify trade-offs between optimum products and service performance and enhanced social and environmental effects for sustainable value addition. Further, Shahzad et al. (2020) identified that CSR is the only way to reduce these adverse ecological effects. However, green marketing and green financing were the success factors behind sustainable production in the current circular economy (Jinru et al., 2021). Although there is a lot of discussion and literature on CSR, these aspects have yet to be evaluated and are not appropriately focused. Therefore, this study intends to examine the practice of green investment and green marketing and their impact on business performance in an encompassing model. Further, the critical mediating role of CSR was also evaluated systematically. For this purpose, Chinese companies are taken as the primary objective for studies to understand the impact of green investment, market orientation, and CSR on their financial, economic, and commercial success.

The current study contributes to the prior literature in multiple ways. First, this research fills the gap by evaluating the relationship among green marketing, green investment, CSR, and Business Performance in an encompassing model using structural equation modeling (SEM). Secondly, this study empowers experts and policymakers to integrate various green strategies and CSR to develop green investment behavior, thus encouraging multiple stakeholders for business performance enhancement. According to Wang et al. (2018), the first step towards being socially responsible for any company is developing transparency and accountability to its shareholders. Third, this study engrossed in the different underexplored green marketing and investment strategies as a critical antecedent of CSR.

2. Literature review & hypotheses development

2.1. CSR and business performance

Academically several published papers and studies have tried to elucidate the constructive influence of CSR on definite features of the effectiveness of corporations
about their financial performance. These features include the facilitation of capital markets by reducing the cost of the merchandise (Park et al., 2017), the enhancement in the productivity of operational activities, the drop of risk factor in the working area (Park et al., 2017), or the betterment in novelty and product development. Stakeholder theory also proposes this encouraging connotation (Jones et al., 2018). In addition to that, most experiential research works (Cho et al., 2019; Park et al., 2017; Wang et al., 2018) submit a positive link between CSR and financial performance, i.e., with the increase in the former, the later additions as well, and vice versa. It was noted that such corporations, which retain the position of being environmentally and socially responsible and hold a certificate of producing such ecologically friendly products, distinguish that organization to gain a unique position and reputation in the market. Several researchers note that CSR can subsidize to an approach of differentiation and increase the export performance of the company (Cho et al., 2019; Park et al., 2017; Stojanovic et al., 2020; Taghian et al., 2015). In addition to that, CSR affects the opinions of stakeholders in a positive way (Cho et al., 2019) and is deliberated as an indication of company’s compliance with their interests and expectations, which is the premise of company’s better repute among them (Cho et al., 2019).

Lastly, CSR entails the corporation better understanding its sponsors’ prospects and interests, besides revising its strategies, goals, and priorities to adjust to those prospects and interests (Maldonado-Guzman et al., 2016). CSR is a crucial success factor for business excellence and sustainable development (Shahzad et al., 2019). It also involves better accountability concerning the firm’s interactions with its investors and the application of discussion and membership procedures that sanction their estimations to be taken (Stojanovic et al., 2020) into consideration in the company’s decisions under the circumstances that involve them. All these features upturn the level of contentment of sponsors and shareholders further than perceived commercial remunerations. So, the following hypothesis is proposed

**H1: CSR has a significant positive relationship with Business Performance**

### 2.2. Green investment and business performance

Various research studies have opined that green investment yields better business performance and an overall increase in stock price and share value. Chariri et al. (2018) denoted these green investments relate positively to business performance. Several studies have been conducted to support the idea that corporations have yielded better outcomes (Falcone, 2018; Su, 2019; Xie et al., 2019). The premise behind the relationship between green investment and business performance lies in two major areas: the production of environmentally responsible products and the preservation of green marketing principles. Therefore, green marketing and green investment are the critical success factors for business excellence in the current circular economy setting (Jinru et al., 2021). A group of industrial ecology scholars also opines that compliance with environmental laws and investment in green economy projects brings profits to the organization and the environment (Falcone, 2018; Su, 2019). So, the following hypothesis was proposed

**H2: Green Investment has a significant positive relationship with Business Performance**


2.3. Green Investment and CSR

Green investment and CSR are relatively inter-connected by their very objective and soul. Green investment hints at building an environmentally responsible economy, while environmental protection in its same premise is a social issue (Razzaq et al., 2021a; Shahzad et al., 2020). Since the inception of the industrial revolution, industries and private investors have brought much ease to the general public’s lives. Their innovative use of modern and evolving technology has always provided the best available facilities to the general public (Han et al., 2020). However, this has come at a severe cost. In their pursuit of bringing ease to society, industries and several manufacturing corporations have caused the environment to deteriorate. The tolling hazard of an environmental catastrophe has brought the world to the verge where the policymakers at all levels had to put their head together to devise a policy that is more responsible towards society on the part of corporations (Han et al., 2020). Martin and Moser (2016) note green investments to have positively contributed in this regard. It is the social responsibility of large multinational corporations to work on CSR principles to eliminate the dangerous implications of climate change. Green investment is directly linked with CSR as they both represent the same objective. According to Bhardwaj (2016), green investment and CSR can be integrated on the principle of unanimity of their goals.

Martin and Moser (2016) also note four foundational principles upon which the CSR model rests. These four principles include societal contribution, good governance, and environmental integrity. This method corresponds with urgencies and ideals of the green economy, which epitomizes a new path of progress. CSR is the name of arranging altruistic programs that help society’s social buildup against the imminent dangers that cast a threat to the survival of humanity at large (Cho et al., 2019). Corporations raise donations and provide sponsorship to such groups of individuals who aim to achieve these goals and are experts in conflict resolutions. For this purpose, the corporation that invests most in the projects of social welfare and green economy, in particular, helps their nations against natural disasters and developing their economy and gain a personal reputation as an organization. Therefore, the following hypothesis is proposed.

H3: Green Investment has a significant positive relationship with CSR
H4: CSR significantly mediates between Green Investment and Business Performance

2.4. Green Marketing and Business Performance

By virtue of reason and argument, several researchers have established that ‘market-orientation impacts the performance of workforces and eventually the corporation (Moravcikova et al., 2017). Eneizan et al. (2016) opined that marketing strategy positively influences an organization’s financial and non-financial performance. Furthermore, modernization also positively compliments business performance (Mukonza & Swarts, 2020).

H5: Green Marketing has a significant positive relationship with Business Performance
2.5. Green marketing and CSR

Since the inception of CSR, several companies have manifested their commitments and promises in the social problems that include environmental protection. Companies and organizations have aligned their market strategies to meet the prescriptions of scientists and scholars to participate in the action against changing climatic conditions practically (Han et al., 2020). Such activities include recycling waste material and using recycled paper in the official business activities; improving logistics and management to reduce carbon-emitting gases in the atmosphere by transportation (Zhang et al., 2021); and making pencils of the plastics’ waste (Mohanty & Nayak, 2017).

It has been observed that environmental cognizance has radically become prominent amongst corporations and consumers in the past few years. For this purpose, both parties have been more careful, with the former producing environmentally friendly products and later promoting those products by discouraging the other merchandise that seems to harm the climate (Jinru et al., 2021). In the backdrop of existing strategies and the impending doom of environmental catastrophe, Amoako et al. (2020) note that people have been taking a close look at the water crisis, deforestation, and depletion of fisheries, reassessing what happens once all these resources are dried up.

As per Seth and Khan (2015), given this increased conservational consciousness, it has become rather significant for firms to align their market strategy in the lines of the green economy. Due to this factor, CSR and green investment have become core principles for any company’s functional and operational activities (Shahzad et al., 2019). It has been observed that corporations and organizations identify increasing voices for accountability by the public and governments. Moreover, this compliance with environmental laws and adoption of green market strategy has estimated the business of US$209 billion for the corporations (Bashir et al., 2016). Keeping in mind the above literature following hypotheses were proposed

H6: Green Marketing has a significant positive relationship with CSR
H7: CSR significantly mediates between Green Marketing and Business Performance

3. Research method

3.1. Data Collection procedure

In the 1970s, China opened the doors for regional and international trade for the first time since its liberation. This policy has made China the second-largest economy globally and one of the biggest emitters of carbon dioxide in the atmosphere. Since becoming a party to Paris treaty on climate, it has become a severe investor in the green economy. With the second-best performing nation in terms of climate bond issuance, it is essential to study the compliance of Chinese companies with environmental laws and its over effect on their business performance. This study is conducted in China by taking various Chinese manufacturing companies and their investment in the green economy to find out the relationship between green
investment, green marketing, and business performance in response to CSR’s mediating role. The study participants were the investors of green bonds, companies who invest in the green economy, members of the general public, and a few green economy experts. For data collection, a survey questionnaire technique was used, with a five-point Likert scale. Nine hundred fifty questionnaires were distributed. The respondent of the dynamic background was chosen for the study whose experience, one way or another, was related to climate change and business firms. Total, 636 questionnaires were returned, out of which 17 were discarded because of a few unacceptable errors. Finally, 619 questionnaires were deliberated for the data analysis. The yielded response rate is almost 65%. Chinese colleagues and students were also requested to assist with data collection. Working from home in the situation of covid-19 helps us generate more responses, as employees work online and have ample time. Nearly 71 percent of those polled worked in a supervisory capacity (Middle and Top Level). Males made up 56 percent of those questioned. The entire demographic findings are shown in Table 1. This study used the ten times rule for sample size, which is ‘10 times the largest number of structural paths directed at a particular latent construct in a structural model,’ as recommended by Hair et al. (2017). The questions ranged from strongly disagree to strongly agree, i.e., starting from 1 to 5. Lastly, the PLS-SEM technique was utilized to analyze the data (Figure 1).

### 3.2. Measures

The questionnaire used for the study was taken from the previous work on the subject, referring to the chosen variables, making them more relevant. The items were designed taking into account six items for socio-demographic variables and 20 items having the statements about the selected variables of this study with a five-point Likert scale as introduced by Albaum (1997); Gwinner (2006); Partecke et al. (2006); Vagias (2006). Variables such as CSR, GI, GM, and business performance were
adapted from previous studies (Charles, 2013; Chauhan & Amit, 2014; Turker, 2009). Items were evaluated using a five-point Likert scale. Moreover, the standards taken for the virtue of the study were also taken from reliable sources. Finally, to measure the data of each variable separately, distinguished items were used.

4. Results and analysis

We used SmartPLS version 3.2.8 and IBM SPSS version 24 to analyze the data, and we used partial least squares structural equation modeling (PLS-SEM). This method is most commonly used when the study’s goal is to predict and investigate exogenous variables. It can cater to both the measurement and the structural model simultaneously. As a result, PLS-SEM appears to be the best prediction-oriented method for this study (Hair et al., 2017). The first test was to determine convergent validity. First, the convergent validity test was conducted in Smart PLS to study the link factor between the items selected for the study. The results noted that a relation between variables chosen for this paper is found to be constructive. The items were rested upon the broad analysis of the alpha and composite reliability. The values of both alpha and composite reliability of variables were higher than 0.7, as was predicted by previous researchers. This showed a high correlation between the variables (Hair et al., 2017). Likewise, this correlation was amplified by the AVE value, which was observed to be higher than 0.5. Table 2 given below signifies the results of the convergent validity test:

For the examination of the discriminate validity, HTMT, i.e., Heterotrait-Monotrait, was selected. It is one of the most advanced techniques to analyse the discriminate value for the items. Ideally, the value of Heterotrait-Monotrait, for positive correlation should not exceed 0.90. This was perfectly complemented by the results, affirming the existence of the discriminate value (Henseler et al., 2015). The results are shown as follows in Table 3.

The data for regression analysis is shown in the following Table 4. The data shows a strong correlation between green investment and CSR, resulting in the better business performance of organizations. In the same manner, CSR also affects business performance. However, the green market does not show any significant relation with business performance. On the contrary, CSR and green marketing show a positive relation. The data below support four hypotheses, i.e., H1, H2, H3, and H6, where

![Conceptual Framework](image-url)
the value of ‘p’ of the hypotheses is less than 0.05, while the values of ‘t’ are higher than 1.64 without any zero in between them. Alternatively, the value of ‘p’ in H5 is 0.054, which indicates no relationship between the green market and business performance. The following table is extracted from the SEM analysis of the given data (Figures 2, 3).

For the comprehensive analysis, CSR was taken as a mediator. To appreciate its role as mediator and association between the variables, bootstrapping analysis was run. The results of this analysis are shown in Table 5 given below. Concerning the analysis, an important construction concerning green investment and business performance is mediated by CSR. Likewise, CSR also plays the role of mediator between green marketing and business performance. Hence, both H4 and H7, with the addition of CSR, revealed positive outcomes. The effect of CSR mediating green investment and marketing in affecting business performance was secondarily authenticated.
by the beta value in both hypotheses, i.e., \( \beta = 0.161 \) and \( \beta = 0.105 \), respectively. In contrast, values for \( t \) were found to be 3.034 and 3.024, respectively. In addition, no zero exists between the upper and lower limits, which also corroborates the indirect

**Figure 2.** Measurement model assessment.
Source: Authors.

**Figure 3.** Structural Model Assessment.
Source: Authors.

**Table 5.** Indirect effects.

| Hypothesize Path | Std. Beta | Sample Mean | Std. Error | T Value | P Values | Decision |
|------------------|-----------|-------------|------------|---------|----------|----------|
| H4 GI -> CSR -> BP | 0.161 | 0.161 | 0.053 | 3.034 | 0.001 | Supported |
| H7 GM -> CSR -> BP | 0.105 | 0.103 | 0.035 | 3.024 | 0.001 | Supported |

Source: Authors.
path of the variables. The values of LL and UL of H6 and H7 supporting the hypotheses are: [LL = 0.214, UL = 0.390] and [LL = 0.010, UL = 0.120].

5. Discussion and implications

This study focuses on green investment projects in China, the working of CSR, and green marketing on the organization’s overall business performance. Data analysis of those Chinese companies is carried out which have been investing in the environmental sector in the form of climate bonds (Su, 2019). This study also determined the CSR activities that some large firms performed through their advertising campaigns and human resources. This was viewed through particular environmental protection and reaction from the public at large against such movements. In addition, the commercial and economic importance of green investment is also studied. Mainly, the effect of investment in environment-friendly projects on the stock and share prices of the companies and their overall performance was assessed (Huang & Lei, 2021). It was observed that these investments place a positive impact on the performance of the company. These results support previous studies in a broader context (Charles, 2013; Chauhan & Amit, 2014).

To put it in another way, green investments were observed to have attracted the attention of a large number of investors. Moreover, it was noted that the organizational performance in terms of profits, operations, and innovation was significantly enhanced. It was concluded that green investment works in the outskirt of CSR (Chen et al., 2018) for environmental protection and sustainable development and augments material benefits for the organization. The data and results predicted that investments in climate-related projects would improve the profitability factor of any organization and its capacity to bring innovation in its working procedure employing technology (Su, 2019). Moreover, CSR is also directly affected by the issuance of green bonds by bringing the related environmental issues to the light for everyone to look. Ali et al. (2017) state that CSR also brings the issues to the attention of policymakers to draw viable policy plans to avoid the menace of climate change. Further, Shahzad et al. (2019) confirmed that CSR activities significantly affect sustainable development in Asian countries.

This study also highlighted how CSR activities, such as green investment and green marketing, may aid in long-term development. Green resources are critical components in the integration of CSR and sustainable development. Among other tools, green innovations in the renewable energy area are vital in addressing ecological challenges. Scholars on this subject previously have opined that China’s investment in environmental projects needs constant re-modification. It is also stated that to orientate China’s market in the international community’s expectations, investment standards should be maintained at a strict level (Han et al., 2020). Regarding disclosing information, the investment framework and trade financing systems should be improved to ensure transparency for foreign investors and a continuous influx of funds in environmental projects (Shuai & Fan, 2020). In terms of CSR, the individuality and honesty of third-party ranking organizations should be falsified, and the number of corporations involved in the projects should be increased (Chen et al.,
To avoid environmental devastation, continued global warming, and climate change, organizations need to control industrial decomposition for sustainable development actively.

The results attained by virtue of this study will also be helpful for the heads in the Chinese and organizations from other countries to draw and devise a viable market strategy to ensure better results and business performance (Bhardwaj, 2016). It was found that the companies which devised a market-oriented strategy by keeping the theory of CSR given their business perspective were better in terms of popularity and profitability (Bashir et al., 2016). Kahlenborn (2017) also denotes that the first and foremost part, where the focus is required, is to develop a strategy for the constructive competition, which does not shy away from the CSR of organizations. It is noted that organizations that tend to produce healthy competition by being in line with CSR tend to avail higher levels of commercial benefits (Amoako et al., 2020). These skills are not difficult to be achieved and need a precise level of attention in the subject matter. Opening windows of opportunities to the multinational competitors will exchange free ideas that can help societies towards betterment; further, it’ll help organizations take their businesses to other countries in need of better opportunities (Mukonza & Swarts, 2020).

Hasan and Ali (2015) assume that the central area of primary concern of green marketing in the present world should be reflected through CSR by meeting customer orientation requirements at all levels. It is not difficult to understand what a customer wants. It should be the top priority for any organization to understand their needs and manufacture the products according to their more environmentally friendly needs. E-vehicles are the most revolutionary products that fulfill both short and long terms (Mukonza & Swarts, 2020). Therefore, business managers across the globe can use this opportunity to be more than business personnel and start giving back society what it needs in the long term by meeting short-term demands. Based on the above discussions, it can quickly be concluded that it is not necessarily true that human needs and environmental needs cannot go side-by-side. With enhanced procedural innovation and development in modern technology, it is becoming easy for visionaries and scholars to draw ideas that can take care of all, i.e., market orientation, public demands, environmental needs, and social responsibilities of corporations. It is not only a need of the hour but a moral responsibility on the part of all business managers, who have made their fortunes over the years.

It is also important to mention that since green bonds and investment are rather a new set of financial entities in China, the data collected only ranged between the years 2017 to 2020. It is by all research methodology measures a short period to predict anything in prospects. Further, the data samples were also relatively small and cannot be relied on for the accuracy of the result in parts. Moreover, the collection of data was conducted using the Chinese standards on China’s green bond index. It was assembled by the collective determination of the ‘China Central Depository & Clearing Co., Ltd’ and ‘the China Energy Conservation and Environmental Protection Group Consulting Co., Ltd. Hence no international standard was taken into account for this purpose. Thus, in the meantime, as the data on climate bonds and green investment becomes more mature and perfect, this study can then be conducted again for accurate results. This study is one of the few studies held on green investment,
CSR, green marketing, and business performance in China. Hence, it is a need of the hour to carry out further research on this topic to understand better the relation of the variables mentioned above with more accuracy.

**Disclosure statement**

No potential conflict of interest was reported by the authors.

**Funding**

This research was supported by the National Natural Science Foundation of China [Grant 71972099], Natural science research project of colleges and universities in Jiangsu Province [Grant 18KJB520007] and Nanjing University of Posts and Telecommunications [Grant JG00719JX85, NY220062 and NY220206].

**ORCID**

Phan The Cong  [http://orcid.org/0000-0002-2487-7064](http://orcid.org/0000-0002-2487-7064)
Apichit Maneengam  [http://orcid.org/0000-0002-5989-5764](http://orcid.org/0000-0002-5989-5764)

c. Department of Marketing and Entrepreneurship, Dhofar University, Sultanate of Oman;

**References**

Albaum, G. (1997). The Likert scale revisited. *Market Research Society. Journal*, 39(2), 1–21. [https://doi.org/10.1177/147078539703900202](https://doi.org/10.1177/147078539703900202)

Ali, W., Frynas, J. G., & Mahmood, Z. (2017). Determinants of corporate social responsibility (CSR) disclosure in developed and developing countries: A literature review. *Corporate Social Responsibility and Environmental Management*, 24(4), 273–294. [https://doi.org/10.1002/csr.1410](https://doi.org/10.1002/csr.1410)

Amoako, G. K., Dzogbenuku, R. K., Doe, J., & Adjaison, G. K. (2020). Green marketing and the SDGs: Emerging market perspective. *Marketing Intelligence & Planning*. (ahead-of-print). [https://doi.org/10.1108/MIP-11-2018-0543](https://doi.org/10.1108/MIP-11-2018-0543)

Bashir, M., Yousaf, A., & Wani, A. A. (2016). Green marketing & CSR: A proactive & innovative tool to gain competitive excellence. *Journal of Supply Chain Management Systems*, 5(2). [https://doi.org/10.21863/jscms/2016.5.2.026](https://doi.org/10.21863/jscms/2016.5.2.026)

Bhardwaj, B. R. (2016). Role of green policy on sustainable supply chain management: A model for implementing corporate social responsibility (CSR. *Benchmarking: An International Journal*, 23(2), 456–468. [https://doi.org/10.1108/BIJ-08-2013-0077](https://doi.org/10.1108/BIJ-08-2013-0077)

Boons, F., & Lüdeke-Freund, F. (2013). Business models for sustainable innovation: State-of-the-art and steps towards a research agenda. *Journal of Cleaner Production*, 45, 9–19. [https://doi.org/10.1016/j.jclepro.2012.07.007](https://doi.org/10.1016/j.jclepro.2012.07.007)

Bukhari, A., Rana, R. A., & Bhatti, U. T. J. I. J. o R. (2017). Factors influencing consumer’s green product purchase decision by mediation of green brand image. *International Journal of Research* 4(7), 1620–1632.

Chariri, A., Bukit, G. R. S. B., Eklesia, O. B., Christi, B. U., & Tarigan, D. M. (2018). Does green investment increase financial performance? Empirical evidence from Indonesian companies. *E3S Web of Conferences*, 31, 09001. [https://doi.org/10.1051/e3sconf/20183109001](https://doi.org/10.1051/e3sconf/20183109001)

Charles, K. (2013). Trade enhancement characteristics of dessert banana fruits and estimates of transaction costs in Okigwe Metropolis, Imo State Nigeria. *International Journal of Food and Agricultural Economics*, 1(1), 141–150. [https://doi.org/10.22004/ag.econ.156841](https://doi.org/10.22004/ag.econ.156841)
Chauhan, S. & Amit. (2014). A relational study of firm’s characteristics and CSR expenditure. *Procedia Economics and Finance, 11*(14), 23–32. https://doi.org/10.1016/S2212-5671(14)00172-5

Chen, Y.-C., Hung, M., & Wang, Y. (2018). The effect of mandatory CSR disclosure on firm profitability and social externalities: Evidence from China. *Journal of Accounting and Economics, 65*(1), 169–190. https://doi.org/10.1016/j.jacceco.2017.11.009

Chien, F., Sadiq, M., Nawaz, M. A., Hussain, M. S., Tran, T. D., & Le Thanh, T. J. (2021). A step toward reducing air pollution in top Asian economies: The role of green energy, eco-innovation, and environmental taxes. *Journal of Environmental Management, 297*, 113420. https://doi.org/10.1016/j.jenvman.2021.113420

Chirimiea, A., Minciu, M., Manta, A.-M., Ciocoiu, C. N., & Veith, C. (2021). The drivers of green investment: A bibliometric and systematic review. *Sustainability, 13*(6), 3507. https://doi.org/10.3390/su13063507

Cho, S. J., Chung, C. Y., & Young, J. (2019). Study on the relationship between CSR and financial performance. *Sustainability, 11*(2), 343. https://doi.org/10.3390/su11120243

Ding, X., Qu, Y., & Shahzad, M. (2019). The impact of environmental administrative penalties on the disclosure of environmental information. *Sustainability, 11*(20), 5820. https://doi.org/10.3390/su111205820

Eneizan, B. M., Wahab, K. A., Zainon, M., & Obaid, T. F. (2016). Prior research on green marketing and green marketing strategy: Critical analysis. *Singaporean Journal of Business, Economics and Management Studies*, 51(3965), 1–19.

Falcone, P. M. (2018). Green investment strategies and bank-firm relationship: A firm-level analysis. *Econ. Bull*, 38, 2225–2239.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). A primer on partial least squares structural equation modeling (PLS-SEM). 2nd ed. SAGE Publications. https://doi.org/10.1016/j.lrp.2013.01.002

Han, S.-R., Li, P., Xiang, J.-J., Luo, X.-H., & Chen, C.-Y. (2020). Does the institutional environment influence corporate social responsibility? Consideration of green investment of enterprises—evidence from China. *Environmental Science and Pollution Research, 1–18.*

Hasan, Z., & Ali, N. A. (2015). The impact of green marketing strategy on the firm’s performance in Malaysia. *Procedia - Social and Behavioral Sciences, 172*, 463–470. https://doi.org/10.1016/j.sbspro.2015.01.382

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science, 43*(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Huang, L., & Lei, Z. (2021). How environmental regulation affect corporate green investment: Evidence from China. *Journal of Cleaner Production, 279*, 123560. https://doi.org/10.1016/j.jclepro.2020.123560

Irfan, M., Razzaq, A., Sukatatan, W., Sharif, A., Elavarasan, R. M., Yang, C., & Rauf, A. (2021). Asymmetric impact of temperature on COVID-19 spread in India: Evidence from quantile-on-quantile regression approach. *Journal of Thermal Biology.*

Jinru, L., Changbiao, Z., Ahmad, B., Irfan, M., & Nazir, R. (2021). How do green financing and green logistics affect the circular economy in the pandemic situation: Key mediating role of sustainable production. *Economic Research-Ekonomskia Istraživanja, 1–21.* https://doi.org/10.1080/1331677X.2021.2004437

Jones, T. M., Harrison, J. S., & Felps, W. (2018). How applying instrumental stakeholder theory can provide sustainable competitive advantage. *Academy of Management Review, 43*(3), 371–391. https://doi.org/10.5465/amr.2016.0111

Kahlenborn, W. (2017). Transparency and the green investment market. In *Sustainable banking* (pp. 173–186). Routledge.

Kasayanond, A. (2019). Environmental sustainability and its growth in Malaysia by elaborating the green economy and environmental efficiency. *International Journal of Energy Economics and Policy 9*(5):465–473.
Khan, S. A. R., Razzaq, A., Yu, Z., & Miller, S. (2021). Industry 4.0 and circular economy practices: A new era business strategies for environmental sustainability. *Business Strategy and the Environment*. https://doi.org/10.1002/bse.2853

Liao, X., & Shi, X(R). (2018). Public appeal, environmental regulation and green investment: Evidence from China. *Energy Policy*, 119, 554–562. https://doi.org/10.1016/j.enpol.2018.05.020

Maldonado-Guzman, G., Pinzon-Castro, S. Y., & Lopez-Torres, G. C. (2016). Corporate social responsibility and business performance: The role of Mexican SMEs. *International Journal of Asian Social Science*, 6(10), 568–579. https://doi.org/10.18488/journal.1/2016.6.10/1.10.568.579

Martin, P. R., & Moser, D. V. (2016). Managers’ green investment disclosures and investors’ reaction. *Journal of Accounting and Economics*, 61(1), 239–254. https://doi.org/10.1016/j.jacceco.2015.08.004

Mirzoieva, T., & Tomashevska, O. (2020). Economic assessment of concentration and monopolization of the market of spices and essential oil plants in Ukraine. *Modern Management Review*, 25(27), 59–72.

Mohanty, V., & Nayak, S. (2017). Green marketing–its application, scope and future in India. *Indian Journal of Scientific Research*, 15(2), 111–116.

Moravcikova, D., Krizanova, A., Kliestikova, J., & Rypakova, M. (2017). Green marketing as the source of the competitive advantage of the business. *Sustainability*, 9(12), 2218. https://doi.org/10.3390/su9122218

Mukonza, C., & Swarts, I. (2020). The influence of green marketing strategies on business performance and corporate image in the retail sector. *Business Strategy and the Environment*, 29(3), 838–845. https://doi.org/10.1002/bse.2401

Nawaz, M. A., Seshadri, U., Kumar, P., Aqdas, R., Patwary, A. K., Riaz, M. J. E. S., & Research, P. (2021). Nexus between green finance and climate change mitigation in N-11 and BRICS countries: Empirical estimation through difference in differences (DID) approach. *Environmental Science and Pollution Research International*, 28(6), 6504–6519. https://doi.org/10.1007/s11356-020-10920-y

O’Neill, B. C., Carter, T. R., Ebi, K., Harrison, P. A., Kemp-Benedict, E., Kok, K., Kriegler, E., Preston, B. L., Riahi, K., Sillmann, J., van Ruijven, B. J., van Vuuren, D., Carlisle, D., Conde, C., Fuglestvedt, J., Green, C., Hasegawa, T., Leininger, J., Monteith, S., & Pichs-Madruga, R. (2020). Achievements and needs for the climate change scenario framework. *Nature Climate Change*, 10(12), 1074–1084. https://doi.org/10.1038/s41558-020-00952-0

Ozkaya, H. E., Droge, C., Hult, G. T. M., Calantone, R., & Ozkaya, E. (2015). Market orientation, knowledge competence, and innovation. *International Journal of Research in Marketing*, 32(3), 309–318. https://doi.org/10.1016/j.ijresmar.2014.10.004

Partecke, J., Schwabl, I., & Gwinner, E. (2006). Stress and the city: Urbanization and its effects on the stress physiology in European blackbirds. *Ecology*, 87(8), 1945–1952. https://doi.org/10.1890/0012-9658(2006)87[1945:SATCUA2.0.CO;2]

Pavlyk, V. (2020). Assessment of green investment impact on the energy efficiency gap of the national economy.

Peattie, K. (2016). Green marketing. In *The marketing book* (pp. 595–619). Routledge.

Rangan, K., Chase, L., & Karim, S. (2015). The truth about CSR. *Harvard Business Review*, 93(1/2), 40–49.

Razzaq, A., Ajaz, T., Li, J. C., Irfan, M., & Suksatan, W. (2021a). Investigating the asymmetric linkages between infrastructure development, green innovation, and consumption-based material footprint: Novel empirical estimations from highly resource-consuming economies. *Resources Policy*, 74, 102302. https://doi.org/10.1016/j.resourpol.2021.102302

Razzaq, A., Wang, Y., Chupradit, S., Suksatan, W., & Shahzad, F. (2021). Asymmetric interlinkages between green technology innovation and consumption-based carbon emissions in
BRICS countries using quantile-on-quantile framework. *Technology in Society*, 66, 101656. https://doi.org/10.1016/j.techsoc.2021.101656

Sachs, J. D., Schmidt-Traub, G., Mazzucato, M., Messner, D., Nakicenovic, N., & Rockström, J. (2019). Six transformations to achieve the sustainable development goals. *Nature Sustainability*, 2(9), 805–814. https://doi.org/10.1038/s41893-019-0352-9

Seth, S., & Khan, M. (2015). Green marketing: Solving dual purpose of marketing and corporate social responsibility. *Management Studies and Economic Systems*, 1(3), 181–188. https://doi.org/10.12816/0019380

Sachs, J. D., Schmidt-Traub, G., Mazzucato, M., Messner, D., Nakicenovic, N., & Rockström, J. (2019). Six transformations to achieve the sustainable development goals. *Nature Sustainability*, 2(9), 805–814. https://doi.org/10.1038/s41893-019-0352-9

Sharif, A., Raza, S. A., Ozturk, I., & Afshan, S. (2019). The dynamic relationship of renewable and nonrenewable energy consumption with carbon emission: A global study with the application of heterogeneous panel estimations. *Renewable Energy*, 133, 685–691. https://doi.org/10.1016/j.renene.2018.10.052

Sharif, A., Bhattacharya, M., Afshan, S., & Shahbaz, M. (2021). Disaggregated renewable energy sources in mitigating CO2 emissions: New evidence from the USA using quantile regressions. *Environmental Science and Pollution Research*, 1–20.

Sharif, A., Baris-Tuzemen, O., Uzuner, G., Ozturk, I., & Sinha, A. (2020). Revisiting the role of renewable and non-renewable energy consumption on Turkey’s ecological footprint: Evidence from Quantile ARDL approach. *Sustainable Cities and Society*, 57, 102138. https://doi.org/10.1016/j.scs.2020.102138

Shahzad, M., Qu, Y., Javed, S., Zafar, A., & Rehman, S. (2020). Relation of environment sustainability to CSR and green innovation: A case of Pakistani manufacturing industry. *Journal of Cleaner Production*, 253, 119938. https://doi.org/10.1016/j.jclepro.2019.119938

Shahzad, M., Qu, Y., Rehman, S., Zafar, A., Ding, X., & Abbas, J. (2019). Impact of knowledge absorptive capacity on corporate sustainability with mediating role of CSR: Analysis from the Asian context. *Journal of Environmental Planning and Management*, 63(2), 148–174. https://doi.org/10.1080/09640568.2019.1575799

Shahzad, M., Qu, Y., Zafar, A. U., & Appolloni, A. (2021). Does the interaction between the knowledge management process and sustainable development practices boost corporate green innovation? *Business Strategy and the Environment*. https://doi.org/10.1002/bse.2865

Su, X. (2019). Can green investment win the favor of investors in China? Evidence from the return performance of green investment stocks. *Emerging Markets Finance and Trade*, 57(11), 3120–31378.

Stojanovic, A., Milosevic, I., Arsic, S., Urosevic, S., & Mihajlovic, I. (2020). Corporate social responsibility as a determinant of employee loyalty and business performance. *Journal of Competitiveness*, 12(2), 149–166. https://doi.org/10.7441/joc.2020.02.09

Su, X. (2019). Can green investment win the favor of investors in China? Evidence from the return performance of green investment stocks. *Emerging Markets Finance and Trade*, 57(11), 3120–31378.

Sun, Y., Duru, O. A., Razzaq, A., & Dinca, M. S. (2021). The asymmetric effect eco-innovation and tourism towards carbon neutrality target in Turkey. *Journal of Environmental Management*, 299, 113653.

Taghian, M., D’Souza, C., & Polonsky, M. (2015). A stakeholder approach to corporate social responsibility, reputation and business performance. *Social Responsibility Journal*, 11(2), 340–363. https://doi.org/10.1108/SRJ-06-2012-0068

Tamvada, M. J. I. J. o C. S. R. (2020). Corporate social responsibility and accountability: A new theoretical foundation for regulating CSR. *International Journal of Corporate Social Responsibility* 5(1), 1–14.

Turker, D. (2009). How corporate social responsibility influences organizational commitment. *Journal of Business Ethics*, 89(2), 189–204. https://doi.org/10.1007/s10551-008-9993-8

Vagias, W. M. (2006). Likert-type scale response anchors. Clemson International Institute for Tourism & Research Development, Department of Parks, Recreation and Tourism Management. Clemson University.
Wang, Z., Hsieh, T. S., & Sarkis, J. (2018). CSR performance and the readability of CSR reports: Too good to be true? Corporate Social Responsibility and Environmental Management, 25(1), 66–79. https://doi.org/10.1002/csr.1440

Xie, X., Huo, J., & Zou, H. (2019). Green process innovation, green product innovation, and corporate financial performance: A content analysis method. Journal of Business Research, 101, 697–706. https://doi.org/10.1016/j.jbusres.2019.01.010

Xuefeng, Z., Razzaq, A., Gokmenoglu, K. K., & Rehman, F. U. (2021). Time varying interdependency between COVID-19, tourism market, oil prices, and sustainable climate in United States: Evidence from advance wavelet coherence approach. Economic Research-Ekonomska Istraživanja, 1–23. https://doi.org/10.1080/1331677X.2021.1992642

Zhang, H., Razzaq, A., Pelit, I., & Irmak, E. (2021). Does freight and passenger transportation industries are sustainable in BRICS countries? Evidence from advance panel estimations. Economic Research-Ekonomska Istraživanja, 1–21. https://doi.org/10.1080/1331677X.2021.2002708

Zhuang, Y., Yang, S., Razzaq, A., & Khan, Z. (2021). Environmental impact of infrastructure-led Chinese outward FDI, tourism development and technology innovation: A regional country analysis. Journal of Environmental Planning and Management, 1–33. https://doi.org/10.1080/09640568.2021.1989672