RESEARCH ARTICLE

The Impact of Environmental Corporate Social Responsibility on Competitiveness in Internet Sector: The Role of Corporate Reputation as a Mediator

Xu Dongrui[1*], Md Gapar Md Johar[2], Jacquline Tham[3]

[1] School of Accounting and Finance, Anhui Xinhua University, Hefei, 230088, China

[2] Software Engineering and Digital Innovation Center, Management and Science University, Shah Alam, Malaysia

[1,3] School of Graduate Studies, Management and Science University, Shah Alam, Malaysia.

ARTICLE INFO	ABSTRACT
	The internet sector, based on information technology, facilitates the connection between online and offline activities. In recent years, the failure of internet companies to fulfill their ecological and digital environmental responsibilities has impacted their competitiveness. Some scholars argue that environmental corporate social responsibility positively (environmental CSR) influences competitiveness, while others believe it has no significant effect. This study examines the impact of environmental CSR on the competitiveness of internet companies, with corporate reputation serving as a mediating variable. A survey was conducted among internet employees working in Shanghai, resulting in 512 valid responses. The sampling method is stratified sampling method. SPSS and AMOS are adopted to test reliability and validity. Findings reveal that environmental corporate social responsibility can positively impact competitiveness in internet sector; corporate reputation relates to competitiveness positively and corporate reputation can partially mediate environmental corporate social responsibility and competitiveness. This study focuses on the specific dimension of corporate environmental responsibility, further enriching the theoretical framework of corporate social responsibility (CSR). It highlights the differentiated impact of industry contexts on environmental responsibility and offers a new perspective on sustainable competitiveness.

1. INTRODUCTION

The internet sector experienced rapid development at the end of the last century and the beginning of this century, gradually evolving into a global and ever-expanding infrastructure (Hesselman et al., 2020). The internet sector is based on information technology, connecting various aspects of daily life — including clothing, food, housing, and transportation — both online and offline. It integrates the internet into traditional service industries, often accompanied by product innovation and upgrades during the process of integration (Chen, 2023). Based on different user applications of the internet, the internet sector can be divided into four categories: information access, business transactions, communication and interaction, and online entertainment applications.

Research on corporate social responsibility (CSR) first began in Western countries. In 1953, American scholar Howard Bowen defined CSR, proposing that businesses, in addition to pursuing economic profits, should also consider social and environmental issues and take corresponding responsibilities in their business activities (Fu, 2019). Based on this foundation, American scholar Keith Davis provided a more detailed definition of corporate social responsibility. He argued that while businesses make decisions primarily to protect their own interests, they also inherently have an obligation to safeguard and enhance social well-being. Therefore, corporations should assume social responsibilities that are commensurate with their capabilities (Xie,2022). In the 1970s, corporate social responsibility (CSR) theory developed rapidly in the Western world. Carroll proposed the "Pyramid Model," which suggests that CSR consists of four hierarchical components: economic, legal, ethical, and philanthropic responsibilities, in ascending order. He later refined the model and definition by incorporating stakeholder theory into the Pyramid Model, emphasizing that corporations should balance the interests of all parties when addressing issues (Yao,2020). By this point, the core framework of the corporate social responsibility (CSR) concept in Western countries had become relatively mature, and Carroll's research on CSR gained widespread recognition in academic circles (Yao,2020).

The theory of competitiveness gained widespread attention from experts and scholars in the 1980s. According to Professor Michael Porter of Harvard Business School, corporate competitiveness primarily refers to a corporation's ability to design, produce, and sell products and provide services, as well as the attractiveness of its products and services in terms of both price and non-price factors, compared to competitors in the market. This ability enables companies to achieve greater profitability and sustainable development (Liang, 2020). In 1990, Michael Porter proposed the "National Diamond" theory, which has since become the most influential theory of competitiveness. Subsequently, corporate competitiveness has remained a subject of ongoing academic discussion, covering topics such as the concept of corporate competitiveness, sources of competitiveness, evaluation indicators, and assessment systems (Zhao, 2020).

The competitiveness of internet corporations can be influenced by their environmental corporate social responsibility (CSR). From an ecological perspective, stakeholders increasingly demand that corporations reduce their negative impact on the environment, which has led to growing attention on environmental management in recent years (Longoni et al., 2018). Taliento et al. (2019) argue that the responsibility corporations take for the environment is a significant factor affecting the competitiveness of modern enterprises. However, many internet corporations are currently falling short in fulfilling their environmental responsibilities. For instance, Amazon's global logistics and transportation network generates a substantial amount of carbon emissions from airplanes, trucks, and delivery vehicles (Yu et al., 2022). Greenpeace criticized Meta for powering its data center in Prineville, Oregon, with energy sources that are predominantly coal-based, with approximately 60% of its electricity coming from coal (Ptach et al., 2023).From a digital environment perspective, Meta's messaging platform WhatsApp was fined €5.5 million by the Irish Data Protection Commission (DPC) in January 2023 for violating the European Union's General Data Protection Regulation (GDPR) (Greenleaf, 2023). The DPC found that WhatsApp failed to comply with GDPR requirements, particularly regarding the use and protection of users' personal data (Magierska, 2023). Additionally, Google has been accused of collecting users' location data through its "Web & App Activity" settings even after users had disabled the "Location History" feature. This practice, which began in 2018, involved tracking users without their explicit consent (Lee, 2024).While scholars have studied the relationship between environmental responsibility and corporate competitiveness, no consensus has been reached. For example, Singh et al. (2019) conducted a study on the environmental management practices of corporations in the UAE and their impact on performance and competitive advantage. Skordoulis et al. (2020) examined the relationship between environmental responsibility and competitiveness in medium and large enterprises in Greece. Conversely, Ashour et al. (2020) found no significant relationship between environmental responsibility and competitiveness in their study of corporations in Jordan, a developing country. To address these gaps in the literature, this studying aims to investigate the impact of environmental responsibility on the competitiveness of Chinese internet corporations.

2. LITERATURE REVIEW

2.1 Corporate social responsibility theory

Carroll (1979) proposed a model of four types of responsibilities, including economic, legal, ethical, and voluntary activities. He argued that the fulfillment of corporate social responsibility (CSR) can be divided into four components with different weights. The first component is the economic responsibility, where the primary goal of a corporation is to maximize profits while maintaining the stable functioning of the market. The second component is the legal responsibility, which requires that a corporation's production and business activities must comply with local laws, regardless of their impact on profits. The third component is the ethical responsibility, where corporations should consciously adhere to the public order and good customs of the area in which they operate, thereby establishing a positive social image. The fourth component is the philanthropic responsibility, where corporation should use their resources and influence to engage in actions beneficial to social development, taking on a portion of social responsibility. In 1991, Carroll further refined his pyramid model of economic, legal, ethical, and philanthropic responsibilities (Carroll, 1991).

2.2 Triple bottom theory

Building upon Carroll's pyramid model, Elkington (1998) introduced the "Triple Bottom Line" theory, which divides corporate social responsibility into three areas: economic responsibility, environmental responsibility, and social responsibility. Elkington further refined this theory, explaining that the triple bottom line also refers to "profit, people, and planet" (Elkington, 2009). Scholars such as Biasutti et al. (2018), Dwyer (2005), and Miller et al. (2007) argue that the "people" dimension encompasses company employees, customers, social welfare, employment experience, satisfaction, employees' families, local communities, and the relationships with various stakeholders, including shareholders and community members affected by the corporation's actions.

2.3 Variable and dimensions

2.3.1 Environmental corporate social responsibility

The natural environment is everyone's responsibility, but it is primarily the responsibility of businesses, as they are often the leading cause of environmental degradation (Alam et al., 2019). Irresponsible use of natural resources, waste generation, or the release of pollution by-products are the main ways in which businesses negatively impact the environment (Henriques, 2013). If businesses protect the environment, it benefits society as a whole; conversely, if businesses harm the environment, society will bear the consequences (Hilmi et al., 2021). Therefore, environmental responsibility emphasizes that businesses should take concrete actions to efficiently utilize existing resources, minimize their environmental footprint, and reduce damage to the ecosystem (Orlitzky et al., 2011). Masanet et al. (2020) pointed out that some internet corporations require data centers to support their business operations, and data centers are energy-intensive facilities. The energy consumption of global data centers accounts for 1% of the world's total energy demand, exceeding the national energy consumption of many countries. The carbon emissions of the internet sector each year are roughly equivalent to the combined annual carbon footprint of Sweden and Finland. Additionally, the sector consumes enough water annually to fill over one million Olympic-sized swimming pools and uses approximately 3,400 square kilometers of land each year, an area equivalent to the combined size of Mexico City, Rio de Janeiro, and New York City (Obringer et al., 2021). Therefore, the development of the internet inevitably impacts energy consumption and the ecological environment. The "network environment" refers to the information, content, and online resources available on the internet (Zhao,2023). In recent years, the development of the internet sector has made it a popular channel for people to access information. People use the internet to share information, connect with others, and stay updated on trending events. However, much of the information appearing on social media recently has been questionable or even false, which, in some cases, has misled the public. The spread of large amounts of fake news online has the potential to cause serious societal issues (Swire-Thompson & Lazer, 2020; Zhang et al., 2020).The regulation of internet content comes not only from the government but also from internet providers, namely internet corporations, which bear the responsibility to review and ensure the accuracy and reliability of the information circulating online (Sivetc, 2020). Therefore, this study evaluates corporate
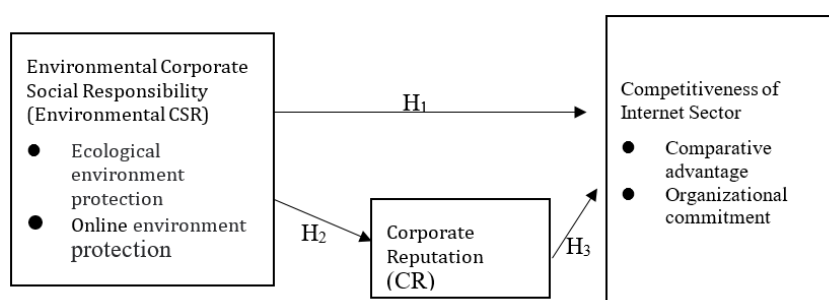
environmental responsibility from two dimensions: ecological environment protection and network environment protection.

2.3.2 Competitiveness

Corporate competitiveness is defined as an organization's ability to consistently achieve its dual objectives: satisfying customer needs while remaining profitable. This ability is realized by delivering goods and services that provide higher customer value compared to competitors (Chikán, 2008). To measure corporate competitiveness, researchers have incorporated both observable/explicit indicators (e.g., financial and market performance) and unobservable/latent indicators (e.g., expertise, skills, product quality) to address its multifaceted nature (Ali et al., 2020; Saeidi et al., 2015). The resource-based view of the firm explicitly recognizes the importance of intangible assets such as knowledge (human capital) and corporate culture (Battaglia et al., 2014), categorizing resources into intangible resources, tangible resources, and human resources. Intangible resources include reputation, technology, and organizational knowledge, while human resources encompass culture, training, employee experience, loyalty, and organizational commitment (Battaglia et al., 2014; Tomšič et al., 2015). Competitive advantage, as a key source of corporate competitiveness, is also critical for achieving long-term and sustainable performance (d'Ippolito, 2014). Therefore, this study selects competitive advantage and organizational commitment as two key dimensions for measuring corporate competitiveness.

3. RESEARCH FRAMEWORK

Based on the study's objectives and critical review, this research proposes the following framework in figure 1.

Figure 1: Research framework

Li et al. (2020) explored the relationship between environmental responsibility and corporate competitiveness in Lithuanian corporations. The study emphasized that environmental issues are global in nature and a priority for most countries. Corporations that recognize the significance of environmental concerns and adopt sustainable, eco-friendly technologies in their business practices can not only reduce environmental pollution but also demonstrate responsibility and maturity as business entities. Alsayegh et al. (2020) conducted a 12-year study on Asian corporations, concluding that disclosing environmental responsibility does not conflict with pursuing economic benefits. In fact, environmental responsibility disclosures can enhance a corporation's competitive advantage. Environmental innovation is one way companies fulfill their environmental responsibilities. A survey of medium and large Greek enterprises revealed that environmental innovation improves efficiency and brand image, thereby enhancing competitive advantage. Nguyen et al. (2019) conducted interviews with food processing companies in Vietnam and found that environmental responsibility positively impacts affective organizational commitment, which in turn improves corporate competitiveness. Similarly, Brachle and Waples (2023), after surveying volunteers in the United States, concluded that corporate responsibility toward the natural environment has a positive effect on affective organizational commitment. Thus, these studies provide a platform to develop the hypothesis H1.

H₁: There is a relationship between environmental corporate social responsibility and competitiveness in internet sector.

Mai et al. (2021) conducted a survey of managers in Vietnam's real estate and manufacturing sectors to analyze the relationship between environmental responsibility and corporate reputation. The study concluded that environmental responsibility is positively correlated with corporate reputation, as fulfilling environmental responsibilities helps meet stakeholders' expectations, thereby enhancing a corporation's reputation. However, González-Rodríguez et al. (2019), in a survey of hotel managers in Spain, found that environmental responsibility does not impact corporate reputation. This was attributed to the fact that hotels have not yet identified the appropriate ways to fulfill their environmental responsibilities, and customers have limited awareness of hotels' environmental protection efforts. Similarly, Ashour et al. (2020) surveyed senior executives from hotels and resorts in Jordan and found no relationship between environmental responsibility and corporate reputation. The study suggested that this is due to the cultural gap in corporate social responsibility practices between developing countries like Jordan and developed countries. Thus, these studies provide a platform to develop the hypothesis H2.

H$_2$: There is a relationship between environmental corporate social responsibility and corporate reputation in internet sector in Shanghai.

Gontur et al. (2022), through a literature review, examined the relationship between corporate reputation and competitiveness, concluding that a strong reputation enhances corporate competitiveness by fostering greater creativity, which in turn strengthens competitiveness. Mai et al. (2021) conducted a study on the relationship between corporate reputation and competitive advantage in Vietnam's trade, service, real estate, and manufacturing sectors, finding a positive correlation between the two. They argued that corporate reputation is a key source of competitive advantage, and managers should maintain their corporation's reputation to improve competitiveness. Cillo et al. (2021) explored the relationship between reputation and competitiveness in three niche tourism destinations in Italy and concluded that a good reputation attracts more tourists. Similarly, Foroudi et al. (2020) conducted a survey of tourists visiting well-known retail stores in London, finding that corporate reputation positively impacts the competitiveness of brands and retailers. Thus, these studies provide a platfom to development the hypothesis H3.

H$_3$: There is a relationship between corporate reputation and competitiveness in internet sector.

Mai et al. (2021) examined the mediating role of corporate reputation in the relationship between environmental responsibility and competitive advantage in Vietnam's service, real estate, and manufacturing sectors. The study confirmed that corporate reputation mediates the link between environmental responsibility and competitive advantage. Siyal et al. (2022) conducted a survey of hotel managers in Pakistan and found that corporate reputation serves as a mediator between environmental responsibility and competitive advantage. Wang et al. (2021) measured competitive advantage from the perspective of brand equity and investigated the mediating role of corporate reputation in the relationship between environmental responsibility and competitive advantage. Their analysis of secondary data confirmed that corporate reputation acts as a mediator. Similarly, Geng et al. (2022) studied the banking sector and found that corporate reputation mediates the relationship between environmental responsibility and competitiveness. Through a survey of bank consumers, they concluded that fulfilling environmental responsibilities enhances corporate reputation, thereby improving competitiveness. Thus, these studies provide a platform to develop the hypothesis H4.

H$_4$: There is a mediation effetc of corporate reputation between environmental corporate social responsibility and competitiveness in internet sector.

4. METHODS

4.1 Measures

The researchers in this study developed a standardized structured quesionnaire to collect primary data. The measurement items utilized for the independent variable of Environmental CSR were

derived from Gao(2019), Mai(2010), Zeng(2022). Items for assessing competitiveness were obtained from Ma(2006), Mitchell(2004), Mai(2010), Li(2023), Allen&Meyer(1993). The items from these scales were slightly modified to increase the contextual applicability. The study used a 5-point Liker scale to measure the variables to avoid mid-point bias and the scale ranged from"strongly agree"to"strongly disagree".

4.2 Sampling method

The participants of this study are employees working in internet companies in Shanghai, China. Shanghai is divided into 16 administrative districts, each with varying levels of economic development and distinct areas of focus (Shi et al., 2021). The development and distribution of internet corporation also differ across these districts. Stratified random sampling ensures that each subgroup is represented in the sample, which helps avoid the risk of neglecting smaller subgroups, as can occur with simple random sampling (Iliyasu & Etikan, 2021). Therefore, this study adopts stratified random sampling as the chosen sampling technique. The researcher in this study distributed 640 questionnaires from where 558 returned; among these 512 respones found appropriate, correct, and valid. As a result, the final response rate in this study was 87%.

4.3 Sample profile

The structured questionnaire was sent to 640 employees, and 512 valid responses were received. Table 1 displays the demographic characteristics of the repondents. 56.4% were males and 43.6% were females. In terms of age, respondents were predominantly aged between 26-30 years, with 27 percent between 18-25 age. Respondents with bachelor degrees account for majority and most people work for 5-9 years.

Table 1: Demographic profile of the respondents

Description	Frequency	Percentage
Gender		
Male	289	56.4
Female	223	43.6
Age		
18-25years	138	27.0
26-30years	244	47.7
31-40years	85	16.6
41-50years	34	6.6
51-60years	11	2.1
Level of education		
High school	62	12.1
Diploma	174	34.0
Bachelor	190	37.1
Master	86	16.8
Working experience		
Less than 3 years	131	25.6
3-5 years	143	27.9
5-9 years	175	34.2
9-15 years	47	9.2
15 years or above	16	3.1

5. ANALYSIS AND RESULTS

5.1 Measurement model

The research used SPSS and strucural equation model in AMOS 24 to analyze the data. Table 2 indicates reliability and validity for dimensions in every variable using confirmatory factor analysis. It illustrates that factor loadings of the most items are more than 0.7, indicating that all measurement items are valid.Cronbach's alpha assess reliability of every variables, that should be greater than 0.7(Henseler et al., 2012). The table shows cronbach's alphas are all larger than 0.7 meaning the reliability is acceptable.Composite reliability should be more than 0.7 and average variance extraction should be more than 0.5 to pass validity testing(Sürücü et al., 2020). Table 2 demonstrates composite reliability and average variance extraction reached the requirements. It implies internal consistency and convergent validity are good.

Table 2: Reliability and validity of every dimensions

Variables	Dimensions	Items	Loadings	Cronbach's Alpha	CR	AVE
Environmental CSR	Ecological environment protection	EP1	0.807	0.894	0.894	0.629
		EP2	0.748			
		EP3	0.827			
		EP4	0.808			
		EP5	0.774			
	Online environment protection	NEP1	0.745	0.841	0.841	0.569
		NEP2	0.769			
		NEP3	0.753			
		NEP4	0.760			
Corporate reputation	Corporate reputation	COR1	0.787	0.913	0.914	0.679
		COR2	0.869			
		COR3	0.818			
		COR4	0.800			
		COR5	0.844			
Competitiveness	Comparative advantage	CE1	0.824	0.871	0.873	0.580
		CE2	0.780			
		CE3	0.700			
		CE4	0.783			
		CE5	0.733			
	Organizational commitment	OC1	0.846	0.929	0.930	0.727
		OC2	0.845			
		OC3	0.891			
		OC4	0.783			
		OC5	0.893			

Discriminant validity refers to whether a latent variable is distinct from other latent variables, indicating whether the observed variables can differentiate between different latent constructs. The Fornell-Larcker criterion is one of the methods used to assess discriminant validity. According to this criterion, the square root of the AVE (Average Variance Extracted) of each latent variable should be greater than the correlations between that latent variable and any other latent variables. If this condition is met, it indicates that the latent variables have good discriminant validity. Table 3 indicates square root of AVE for competitiveness and NEP is slightly less than correlation coefficient with the other laten variables, but overall performance is good.

Table 3: Discriminant validity

	Environmental CSR	Corporate Reputation	Competitiveness	OC	CE	NEP	EP
Environmental CSR	**0.777**						
Corporate Reputation	0.559	**0.824**					
Competitiveness	0.708	0.722	**0.809**				
OC	0.559	0.571	0.79	**0.853**			
CE	0.579	0.591	0.818	0.647	**0.762**		
NEP	0.832	0.465	0.589	0.465	0.482	**0.754**	
EP	0.748	0.418	0.529	0.418	0.433	0.622	**0.793**

5.2 Results of Structure model and hypothesis testing

Structural Equation Modeling (SEM) consists of two components: the measurement model and the structural model. The **measurement model** describes the relationship between latent variables and observed variables, using factor analysis to verify whether the observed variables effectively reflect the latent constructs. The **structural model** illustrates the causal relationships between latent variables, using path analysis to determine the direction and magnitude of the influence among variables. Figure 1 indicates that the factor loadings for all items are greater than 0.6, meeting the required threshold, which demonstrates that the observed variables have a strong explanatory power for the latent variables. CMIN/DF is 1.502 which is less than 5. RMSEA is 0.031 which is less than 0.08 and CFI is 0.984 which is larger than 0.9. CFI and TLI is 0.984 and 0.982 respectively, which are acceptable. Results show that model fit is good for all items.
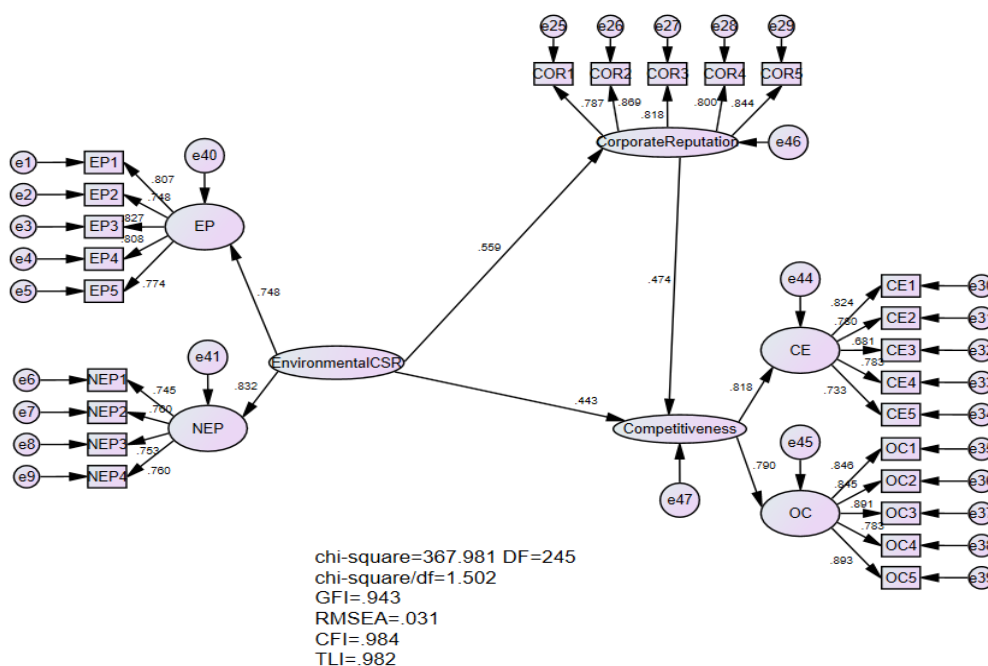

Figure 1: Structural model

Table 4 shows the results of hypothesis testing, including standardized estimate, standard errors, critical value, p value and decisions. Results reveal that three hypotheses are significant supported. Results support H1 indicating if Shanghai's internet corporations fulfill environmental corporate social responsibility, competitiveness will be enhanced. Besides, corporate reputation can positively

effect competitiveness, thus H2 is supported. Additionally, there is a significantly positive relationship between environmental corporate social responsibility and corporate reputation, thus H3 is supported. It means if Shanghai's internet corporations fulfill environmental corporate social responsibility, corporate reputation will be enhanced.

Table 4: Results of hypotheses testing

	Hypothesis	Standard Estimate	S.E.	C.R.	P	Decision
H1	Competitiveness<--- Environmental CSR	0.443	0.074	6.222	***	Support
H2	Competitiveness<--- Corporate Reputation	0.474	0.06	7.659	***	Support
H3	Corporate Reputation<--- Environmental CSR	0.559	0.069	8.705	***	Support

5.3 Mediating effects

A bootstrap sample of 2,000 was obtained to test the mediation effects. Both bias-corrected and percentile methods were used to construct confidence intervals. If the confidence interval contains zero, it indicates there is no mediating effect. Table 5 is Mediation effect of Corporate Reputation (CR) on Environmental Corporate Social Responsibility (Environmental CSR) and C(Competitiveness). The results show confidence interval does not include zero under bias-corrected method, P value is significant in indirect and direct effect in terms of bias-corrected method. Confidence interval does not include zero under percentile method, P value is also significant in indirect and direct effect in terms of percentile method. As a result, corporate reputation partially mediates environmental CSR and competitiveness.

Table 5: Results of mediating effect

Mediation effect of CR on Environmental CSR and C								
Path relationship	Estimate	Bootstraping 2000 times 95% CI						Decision
		Bias-corrected			Percentile			
		Lower	Upper	P	Lower	Upper	P	H4: Support
indirect: Environmental CSR→CR→C	0.275	0.196	0.371	0.001	0.196	0.37	0.001	
direct: Environmental CSR→C	0.459	0.322	0.63	0.001	0.32	0.626	0.001	
total: Environmental CSR→C	0.734	0.595	0.904	0.001	0.595	0.903	0.001	
Mediation effect: Partial effect								

6. DISCUSSION

The objective of the present study is to identify the impact of environmental corporate social responsibility on competitiveness in Internet Sector. The study analyzed relevant previous theories and models and was designed to determine the relationships between independent variables, mediating variable and dependent variable. Questionnaire was developed based on extensive research into the academia of environmental corporate social responsibility, corporate reputation and competitiveness. Then the hypotheses were formulated. Respondents are employees working in internet sector in Shanghai, China. Structural Equation Modelling AMOS was used to perform Confirmatory Factor Analysis (CFA) and structural model. The method of analysis was the regression path analysis in SEM and bootstrapping, bias-correlated percentile method and percentile method.

P value is less than 0.05 from table 4, it indicates environmental corporate social responsibility is positively related to competitiveness in internet sector. That is to say, if internet corporations implement corporate social responsibility in terms of environment, it will increase competitiveness. First, large-scale data centers and server clusters operated by internet companies consume significant amounts of energy. The use of digital technologies can optimize resource allocation and utilization, improving resource efficiency and reducing the costs of hardware procurement and operation, thereby enhancing corporate competitiveness. Second, with consumers becoming increasingly environmentally conscious, they tend to have a stronger preference for and recognition of environmentally responsible companies and products. By fulfilling environmental responsibilities and launching eco-friendly products and services, internet companies can better attract consumers and improve their competitiveness. The findings of this study are consistent with those of previous scholars. Li et al. (2020), through a questionnaire survey, explored the relationship between environmental responsibility and corporate competitiveness in Lithuanian companies. The results indicated a positive relationship between environmental responsibility and competitiveness, further highlighting that environmental issues have become a global challenge. Companies that recognize the urgency of environmental problems and adopt sustainable eco-friendly technologies can strengthen their competitiveness as business entities. Similarly, Alsayegh et al. (2020) conducted an empirical study on Environmental, Social, and Governance (ESG) disclosures in Asian companies. The findings revealed that fulfilling environmental responsibilities enhances competitive advantages and that improving environmental responsibility disclosures brings significant competitive benefits to companies.

P value is less than 0.05 from table 4, it indicates corporate reputation positively relates to competitiveness in internet sector. That is to say, if internet corporations improve corporate reputation, it will enhance competitiveness. First, internet companies can enhance their reputation, which helps attract users and expand their market. In the digital environment, where information is abundant and its authenticity is often hard to verify, users tend to choose companies with a good reputation when selecting products or services. A strong reputation signals reliability and stability, making users believe that their rights will be better protected. Second, a good reputation can attract talent and strengthen teams. Top talent often prefers to work for companies with a strong reputation, as it not only offers better career development opportunities but also provides a sense of professional honor. Employees working for companies with a good reputation tend to have a stronger sense of recognition and belonging, making them more willing to commit to the corporation in the long term. The findings of this study align with the conclusions of several scholars. Mai et al. (2021) explored the relationship between corporate reputation and competitive advantage in Vietnam's trade and services, real estate, and manufacturing industries. The study, which surveyed managers of both small and medium-sized enterprises (SMEs) and large enterprises, concluded that corporate reputation is positively correlated with competitive advantage. Cillo et al. (2021), through secondary data collection and interviews, investigated the relationship between online reputation and competitiveness in the tourism sector in Italy. They concluded that a tourism destination with a strong online reputation is able to attract more visitors, thereby enhancing its competitiveness. Foroudi et al. (2020) examined the relationship between the reputation and legitimacy of public universities, aiming to create a sustainable competitive advantage for them. After surveying Spanish universities, they concluded that the reputation of public universities positively impacts their legitimacy, helping them maintain their competitiveness.

P value is less than 0.05 from table 4, it indicates environmental corporate social responsibility positively relates to corporate reputation in internet sector. That is to say, if Shanghai's internet corporations fulfill environmental corporate social responsibility, it will enhance corporate reputation. First, fulfilling environmental responsibilities allows corporations to meet consumer expectations and market demands, leading to greater consumer recognition and enhancing the corporation's reputation. Second, fulfilling environmental responsibilities promotes internal management and employee engagement. It encourages internet corporations to establish comprehensive environmental management systems and optimize operational processes. This efficient management model not only helps corporations to achieve environmental goals but also

improves overall operational performance, earning the corporation a strong reputation. The findings of this study are consistent with those of several scholars. Mai et al. (2021) examined the relationship between environmental responsibility and corporate reputation, surveying managers in Vietnam's real estate and manufacturing sectors. They concluded that fulfilling environmental responsibilities enhances corporate reputation. However, some scholars' research contradicts the findings of this study. González-Rodríguez et al. (2019) investigated the relationship between environmental responsibility and corporate reputation, focusing on hotel managers in Spain, and concluded that fulfilling corporate social responsibility does not impact corporate reputation.

7. IMPLICATIONS

7.1 Theoretical implications

This study focuses on the relationship between environmental corporate social responsibility and competitiveness in the internet sector, with a deep exploration of the mediating role of corporate reputation in this relationship. It offers the following theoretical contributions to the relevant research field: First, this study expands the subfield of CSR research. Traditional CSR studies often cover multiple dimensions, including social, economic, and environmental responsibilities. However, this study focuses specifically on environmental responsibility, enriching the theoretical framework of CSR. The findings reveal that environmental responsibility significantly enhances corporate competitiveness, indicating that it is no longer merely a moral obligation but an essential path for corporations to achieve long-term competitive advantages. This provides a more refined direction for future CSR research. Second, the study highlights the sector-specific impact of environmental responsibility. By taking the internet sector as the research context, the study finds that environmental responsibility holds particular significance in this sector. Unlike traditional manufacturing sectors, where environmental responsibility is often linked to production emissions, internet corporations' environmental responsibility primarily manifests in energy consumption management of data centers and green technology innovations. Therefore, the form and impact pathway of environmental corporation social responsibility vary across sectors. Finally, this study offers a new perspective on sustainable competitiveness. The findings suggest that fulfilling environmental responsibilities is not merely a cost but a long-term investment that can enhance a corporation's sustainable competitiveness through reputation effects. This provides a fresh perspective on corporate competitiveness theories, emphasizing the importance of environmental responsibility in building enduring competitive advantages.

7.2 Practical implications

The findings of this study have important practical implications for the management practices of internet corporations and the decision-making of policymakers. The key insights are as follows: First, environmental responsibility should become a core competitive strategy for internet corporations. The study reveals that environmental corporate social responsibility directly enhances corporate competitiveness. Therefore, internet corporations should shift from viewing environmental responsibility as merely a social obligation to incorporate it as a core component of their competitive strategy. These corporations should focus on energy management in data centers and the adoption of energy-saving technologies, reduce carbon emissions, and promote green transformation across the entire supply chain, thereby achieving sustainable development along the entire value chain. Second, corporate reputation is the key to realize the value transformation of environmental responsibility. The results show that corporate reputation acts as a crucial bridge in the relationship between environmental corporate social responsibility and competitiveness. This implies that corporations must prioritize reputation management when fulfilling their environmental responsibilities to maximize the impact. Corporations should communicate positive messages to stakeholders by publishing environmental responsibility reports, thereby increasing public recognition and trust in the corporations.

8. LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

Although this study provides valuable insights into the relationship between environmental corporate social responsibility, corporate reputation, and competitiveness in the internet sector, it still has several limitations that warrant further discussion. First, **limitations in the research**

sample. The sample data used in this study mainly come from corporations in the internet sector, whose environmental responsibility practices and reputation characteristics differ significantly from those of traditional sectors, such as manufacturing. Therefore, the generalizability of the findings to other sectors may be limited. Second, **the lack of exploration of other mediating variables**. While this study confirms the partial mediating role of corporate reputation in the relationship between environmental corporate social responsibility and competitiveness, reputation is not the only mediating factor. Other variables, such as technological innovation capability and organizational learning ability, may also play mediating or moderating roles in this relationship. Future research should explore these factors to gain a more comprehensive understanding of the underlying mechanisms. Finally, **limitations in data collection methods**. This study relies on questionnaire surveys to collect data, which may be subject to subjective bias and time-related limitations. The cross-sectional data used in this study capture corporation behaviors at a single point in time, failing to reflect the dynamic changes in the relationship between environmental responsibility and corporate competitiveness over time. Future research could benefit from longitudinal data to track these relationships and capture their evolution more accurately.

Future research could incorporate **different sector contexts** into the analysis, comparing how environmental responsibility practices affect competitiveness across various sectors such as manufacturing, services, and high-tech sectors. This would enhance the generalizability of the study's conclusions. Additionally, future studies could introduce **multiple mediation models** to explore other potential mediators beyond corporate reputation that may influence the relationship between environmental corporate social responsibility and competitiveness. Factors such as innovation capacity, organizational learning, and stakeholder engagement could serve as important mediators. Moreover, adopting a **longitudinal research design** would allow researchers to collect data from corporations over different time periods. This approach would help capture the long-term impact of environmental corporate social responsibility and reveal the dynamic trends between corporate reputation and competitiveness, offering a more comprehensive understanding of how these relationships evolve over time.

9. CONCLUSION

This study explored the relationship between environmental corporate social responsibility and competitiveness in internet corporations, as well as the mediating role of corporate reputation in this relationship. The results indicate that environmental corporate social responsibility positively impacts competitiveness, corporate reputation is positively correlated with competitiveness, and reputation partially mediates the relationship between environmental corporate social responsibility and competitiveness. This research contributes to the CSR literature by expanding its focus on the specific domain of environmental responsibility. It highlights the importance of sector context in shaping the impact of environmental corporate social responsibility and provides a new perspective on sustainable competitiveness. Based on the findings, the study recommends that internet corporations shift from viewing environmental responsibility as a social obligation to integrating it into their core competitive strategy. Additionally, corporations should prioritize reputation management when fulfilling environmental responsibilities to maximize their positive impact on competitiveness.

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