Assessing the Relationship Between Green Accounting, Sustainable Development and Social Responsibility Disclosure in Heavy Polluting Companies

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ABSTRACT

This study examines the relationship between sustainable development and green accounting by analyzing the social responsibility disclosures of sustainable development firms. Using data from 2010 to 2022, it will examine the impact of green accounting on the sustainable development of China's heavily polluting enterprises. The Ruling Global Responsibility Rating Company provides the quality score for corporate social responsibility information disclosure. The aspect data score is processed concurrently. Analyze the exponential function. We assess the quality of corporate social responsibility information disclosure using an enhanced logarithm.

Additionally, to account for their influence, we use two dummy variables to represent the firm's age and industrial sector, along with the dependent variable of sustainability, the independent variable of green accounting implementation, and the moderating variable of social responsibility disclosure. The study's results indicate a robust positive correlation between the extent of social responsibility information disclosure and the capacity of heavily polluting companies to achieve sustainable development. The correlation between the implementation of green accounting and the potential for sustainable development in heavily polluting Chinese enterprises positively influences the quality of social responsibility information disclosure.

Keywords: Green Accounting, CSR disclosure, Sustainability, Pollution, Environmental degradation, Quality of Audit.

1. Introduction

Accounting and finance have long been core business disciplines. Accounting and finance's primary goals revolve around effective capital management and preventing fraudulent activity within the organization. Nonetheless, these sectors have undergone significant transformations throughout the years. Accounting and finance are two distinct fields; accounting focuses on the thorough documentation and reporting of financial activities, including revenues and expenses, whereas finance is concerned with the strategic management of financial resources. According to Hörisch, and Schaltegger [1], the accounting field has traditionally focused on displaying numerical and financial data connected to profits and losses, frequently ignoring non-monetary information. To examine their operations' socioeconomic and environmental implications, companies have recently begun to emphasize sharing non-financial information with relevant stakeholders and the general public. Financial accounting explains the phenomenon through the lens of sustainability accounting and reporting. This term gained popularity in the early 2000s due to concerns about environmental and climate change issues. Cost, financial, and managerial accounting are sub-disciplines within the larger field of accounting [2]. These factors intertwine intricately. Organizations can use cost and managerial accounting to communicate financial information about the company's capital and operational endeavors, whereas managerial accounting emphasizes decision-making based on this specialist data.

Addressing climate change, increasing waste recycling, and protecting the environment should be top priorities for organizations devoted to sustainable development. The debate surrounding sustainability and sustainable development has evolved into a significant social concern, mainly due to increased pollution levels and frequently inadequate responses to these challenges. To guarantee that a company's culture promotes responsible and sustainable development, all policies, actions, and attitudes must be consistent with its fundamental principles [3]. According to Gong and Xu [4]the article, firms that engage in CSR programs now disclose their financial and non-financial impacts on social and environmental issues to investors.

To minimize the harmful effects of environmental degradation, we need to condemn unsustainable development practices and prioritize ecological purity over financial gain. This method is the most practical and quick way to solve the problem. The domestic knitwear and ready-made apparel market is vital in China's textile industry. Unlike the textile industry, the pharmaceutical and chemical sectors, along with paper and printing, steel, food-related businesses, energy, and cement, are primarily responsible for China's economic growth and environmental degradation.

According to the Intergovernmental Panel on Climate Change, from 2011 to 2020, industrialisation caused a 1.09 °C increase in global surface temperatures, with human activities accounting for around 1.07 °C. This has resulted in a higher frequency of extreme weather events. Rockstrom predicts that around 2020, humanity will reach a critical juncture in the ecological system, making the next decade crucial for reversing environmental degradation. In addition to climate change, researchers have looked into the impact of environmental pollution on soil quality [5]. Studies show that heavy metals such as

lead, cadmium, nickel, and mercury hurt soil health and crop quality [6-8]. Turan [9] These findings are inherently linked to significant health risks for humans and animals, raising concerns regarding the well-being of both humans and animals.

Concerns about the sustainable growth of Chinese businesses have emerged in light of the environmental pollution issue. The growing public concern for environmental preservation and the nation's continued support for environmental regulation have led to establishing higher development standards for firms emitting considerable pollution [10]. Habib [11] argue that these improvements have consistently increased people's quality of life. "Green accounting" refers to incorporating environmental expenses into a company's financial results. The picture shows the financial benefits and environmental consequences the company would experience due to its development—the findings on corporate social responsibility back up this claim [12]. We must disclose this material completely and precisely. Enhancing the quality of data obtained from green financial statements can be accomplished by closing the knowledge gap between the organisation and key external stakeholders. Investment and financial decisions significantly influence the sustainable growth of ecologically detrimental enterprises [13].This study investigates the correlation between sustainable development and green accounting by analysing the social responsibility disclosures of heavily polluting enterprises. This study will empirically examine the influence of green accounting on the sustainable development of China's heavily polluting companies, utilising data from 2010 to 2022.

Therefore, we must research to determine the impact of green accounting adoption on polluting firms' sustainable development. Is a company's viability enhanced when it fulfils its social responsibility obligations? What effect would heavily polluting companies' adoption of green accounting have on sustainable social development? The queries and current analysis are based on empirical data from China's most polluting industries.

2. Literature Review

2.1 Sustainable Development and Green Accounting

The concept of "green accounting" pertains to assessing a country's environmental investments and the depletion of its resources. Ma, Shu [14]The study suggests that the development of green accounting aimed to help organisations identify and manage the trade-offs between environmental and conventional economic objectives. Christine [15] and Gunarathne, Lee [16] contend that organisations must swiftly develop strategies to embrace green accounting to improve existing and future green incentives. Accounting promotes a sustainable future for organisations by analysing and integrating environmental factors into a holistic framework. In contrast, sustainable business compels organisations to assess their performance goals' social, environmental, and financial dimensions [17]. Despite the widespread recognition of SAR's significance, not all companies currently participate. One could attribute the omission to insufficient expertise or the belief that the issue is not significant enough to include in the company profile . identify a notable trend impacting all areas of business: the disclosure of non-financial information through sustainability accounting. This is due to the interconnectedness of all

internal and external stakeholders with business management [19]. Engagement in SAR fosters a sense of trust among customers and shareholders, reflecting a profound dedication to environmental stewardship.

The concept of sustainable development reflects a global challenge that affects every country on Earth. Economic growth periods often see an increase in natural disasters, potentially due to the depletion of finite resources. As a result, there is a lack of energy and fuel, which exacerbates environmental degradation [20]. Integrating sustainable development with social stability, environmental protection, and economic success is a critical global need today. Many polluting firms in China have benefitted financially from the current phenomenon, particularly in the space-for-time and environment-for-economy sectors, contributing to GDP development [21]. Following the China Environment Protection Act's establishment in 1995, this fast-developing country has prioritized environmental protection [22]. Businesses must examine the extent, intricacy, and uniqueness of their operations, offerings, and services by the legislation. In their annual reports, organizations must provide forecasts of environmental impact, waste management strategies to reduce these repercussions, and environmental protection measures [23]

2.2 Importance of CSR Disclosure

Following the Enron and WorldCom scandals, which sought to alter financial records for personal gain, the significance of accounting and governance has significantly increased. The company hired independent auditors to review its financial records and implemented a corporate governance framework to handle the accounts methodically [13]. Sustainability accounting arose in response to growing concerns about the planet's environment, a phenomenon rooted in the industrial revolution. This required corporations to report their non-financial activities alongside their financial operations, which benefitted society and the environment by lowering carbon footprints and improving sustainability. According to Joshi and Rahman [24]the company, it has gradually concentrated on decision support systems to improve corporate sustainability and management since the deployment of SAR with more transparency. The company considers these systems critical to its long-term operations [25]. Despite the hotly debated roles of accountants in SAR, there is a consensus on their crucial involvement in the planning and reporting processes, which ultimately aids decision-makers in making informed decisions [26]. Christensen et al. argue that corporate social responsibility (CSR) is critical in sustainability accounting and reporting because it typically establishes resource mobilisation requirements that consider environmental limits. This situation is under SAR's control regarding the company's relevant processes. Jiang, Liu [27] assert that annual reports often view sustainability reporting as a crucial element, typically incorporating non-financial data about a company's environmental impact. Marketing and public relations are just some areas that can benefit significantly from them. By reflecting on these issues, organisations can examine their strengths and shortcomings, strengthening their positions in the pursuit of sustainability. According to Jiang, Liu [27]the SAR, it explores several aspects of organisational operations and activities, resulting in an analysis of environmental and social difficulties, as well as the potential role of businesses in alleviating these challenges. The release and public accountability of non-

financial information improves a company's relationship with society, its employees, and the community [28]. It also demonstrates a strong dedication to environmental preservation for a brighter future [29]. Shah and Bhatt [22] examined the challenges of sustainability reporting and accounting in developing nations, including India. The extensive research on this subject suggests that a significant lack of understanding among senior management executives impedes the efficient implementation of SAR at both national and regional levels [30]. An important concern is the need for a specific legal framework for assessing and enforcing the SAR. This problem is common in India and other countries, as management recognises the importance of SAR while frequently ignoring its real implementation. Kumar, Jat [31] findings highlight the need for businesses to recognise their role in the global ecosystem and actively contribute to promoting a sustainable environment. Some argue that companies should emphasise their social responsibility initiatives over creating shareholder value, as the former may accidentally contribute to a decrease in the latter. Only a small percentage of organisations can achieve sustainability, produce shareholder value, and meet their obligations within a sustainable framework [32]. In recent years, there has been an increased discussion about businesses' potential use of sustainability accounting. While many individuals may overlook the fundamental reasons, most businesses acknowledge them. According to research, many firms lag behind their competitors in sustainability accounting and reporting due to a lack of commitment and incentive to implement these practices [33]. Companies are under increasing pressure to actively promote societal well-being as stakeholders and customers become more conscious of social and environmental challenges [25]. Organisations that flout these principles will likely have significant challenges maintaining their activities. However, we must develop a comprehensive definition of SAR before we can apply it effectively. It is critical to note that different groups have varied interpretations of SAR, and a widely accepted definition is still elusive [34]. In contrast, Iredele, Tankiso [35] four key contributors in this sector are critical to the advancement of SAR. These organisations include the Global Reporting Initiative (GRI), the Sustainability Accounting Standards Board (SASB), the Carbon Disclosure Project (CDP), and the International Integrated Reporting Council (IIRC).

2.3 Relationship Between CSR, Green Accounting and Sustainable Development

Corporate directors and management are encountering mounting pressure to acknowledge the importance of their environmental impact in the present context. To secure enduring success, a business must embrace sustainable accounting practices and leverage environmentally friendly technologies. Plecnik, Yang [36] held that organisations construct corporate governance frameworks informed by agency theory. Corporate social responsibility (CSR) and green accounting represent pivotal eco-friendly practices that discerning shareholders highlight as vital for promoting sustainable environmental governance within organisations. Executives Zhu, Zhang [37], [38] and Wang, Ma [13]strive to address conflicts of interest through corporate social responsibility (CSR), thereby enhancing social and environmental sustainability. The impact of corporate social responsibility on sustainability reporting and environmental accountability in the Sustainable Development Goals contributes to the enduring

realization of these objectives. Agency theory holds that businesses have the capacity to facilitate the attainment of the Sustainable Development Goals (SDGs) and promote sustainable development practices via corporate social responsibility (CSR)[39].

Interest plays a significant role in shaping organisational decision-making and policies, ultimately contributing to enhancing and refining the company's image. The influence of the public and stockholders is paramount when it comes to decisions that affect the company's reputation. Unlike shareholders, the company's management has an articulated vision for its future direction [3]. Despite this, the company's shareholders continue to advocate for a policy shift towards sustainable corporate governance. Gonzalez and Peña-Vinces [26] contend that communities demonstrate "social respect" for corporations that adhere to legal requirements and harmonise with dominant interests through corporate social responsibility (CSR). This study reveals that investors demonstrate a significant concern regarding policies that negatively affect the environment, surpassing their attention to other factors. A strong reputation can profoundly influence a company's financial outcomes and societal perception. Harmonising corporate activities with the anticipations of stakeholders regarding appropriate behaviour and societal norms is essential to the framework of legitimacy theory [40, 41].

Corporate social responsibility is gaining significant attention alongside the traditional view of corporate philanthropic contributions. The concept of social responsibility undoubtedly encompasses more than mere charitable acts [30]. Adopting green accounting, a method of financial reporting that receives active endorsement from governmental bodies, significantly enhances the organization's potential for sustainable development. Businesses must hasten the integration of green accounting as a metric-driven approach to corporate social responsibility . Distributing statistics on corporate social responsibility effectively implements social responsibility. Increased openness significantly improves the efficacy of corporate social responsibility (CSR).

The more significant the advantages, the more pronounced the interest attracted by the advocacy of environmentally conscious accounting and sustainable business practices. Maintaining transparency in revealing social responsibility could positively influence the sustainability of polluting companies and their adoption of green accounting practices. According to, green accounting, sustainable development, and corporate social responsibility reporting have traditionally been associated with Western economic paradigms [12, 30]. Nevertheless, certain multinational corporations contend they have enhanced their social and environmental performance in developing countries after well-documented incidents and considerable pollution occurrences [45]. Emerging countries such as China are progressively adopting stakeholder theory to promote a green economy as a foundation for corporate social responsibility (CSR) reporting, sustainable development efforts, and green accounting practices [22, 26, 30, 46].

To uphold its esteemed reputation, the corporation may endeavour to connect with new audiences. The organisation consistently upholds the ideals of sustainability, environmental stewardship, and social responsibility [47-49]. Liquidity theory is essential for reinforcing the connection between corporate social responsibility (CSR), green accounting, and achieving the Sustainable Development Goals (SDGs)

[50-52]. This idea offers a robust foundation for corporations participating in socially and ecologically responsible initiatives. The foundation of environmental accounting lies in comprehending the entities that gain benefits from environmental factors. For sustainable development, integrating ecological accounting with corporate social responsibility and green accounting ensures the enduring viability of business operations [53]. Organizations can achieve enduring growth by integrating CSR impact, which supports fulfilling community expectations and promotes transparency. Green accounting research has made noteworthy progress in evaluating performance, societal effects, financial consequences, and the social responsibilities of corporations [54, 55]. Agyemang, Yusheng [25]contend that green accounting aims to guide firms in harmonising conventional economic goals with environmental concerns. [51]contend that implementing green accounting practices can aid the organisation in achieving a sustainable future. Green accounting plays a crucial role in achieving the Sustainable Development Goals (SDGs) by providing frameworks for reporting and evaluating the environmental consequences of economic activities, as suggested by Jones in the 2009 [56] theory of environmental accounting. Many studies have focused on green accounting, revealing a favorable correlation between green accounting practices and the Sustainable Development Goals (SDGs) [51].

2.4 Research Hypothesis

Based upon the in-depth study of relevant literature, the following hypotheses are proposed:

H1. Implementing green accounting techniques positively correlates with the sustainable development of heavily polluting companies in China.

H2. A robust positive link exists between the quality of social responsibility information disclosure and the sustainable development of polluting enterprises in China.

H3. The publication of quality social responsibility information greatly enhances the strong correlation between green accounting and the performance of heavily polluting firms.

3. Research Methodology

3.1 Data Source

This research investigates the relationship between environmental disclosure and the likelihood of a stock market downturn, drawing on samples from publicly traded companies in China that are significant polluters. Entities from 16 sectors characterised by significant pollution are selected and subsequently refined by the Guidance on Environmental Information Disclosure for Listed Companies and the Classified Management Directory of Environmental Protection Verification Industries, covering the period from 2010 to 2022. We focus this investigation on specific Chinese enterprises recognized for their significant environmental degradation. This article examines the extensive impact of various heavily polluting industries on a global level, such as thermal power, steel production, cement manufacturing, dockyards, electrolytic aluminium, coal extraction, chemicals, petrochemicals, building materials, papermaking, pharmaceuticals, fermentation processes, textiles, tanning, and mining operations. We solely extracted the information for this study from the annual reports. The sample for this study consisted

of 2000 companies that are publicly traded on the Shanghai Stock Exchange. The validity and reliability of the initial samples were assessed based on several criteria, including ambiguous company property rights during the research period, atypical asset-liability ratio values, a lack of disclosure regarding social responsibility information, and insufficient disclosure of essential indicators such as financial data. The inclusive aggregate sum spanning 2010 to 2022 comprises 512 data points derived from 512 authentic study samples. The annual reports of publicly traded companies function as a comprehensive repository for data collection, as they include all pertinent variables. We truncated all continuous variables to the 1% and 99% quantiles to maintain the integrity of the research against data outliers.

3.2 Description of the Variables

Corporations that contribute to pollution ought to engage with the concept of sustainable development through a multifaceted lens. Dhar, and Sarkar [30] contend that integrating sustainability within a corporation necessitates a comprehensive approach encompassing the three dimensions of sustainability: business, environmental, and elemental. Sustainable development is an evaluable result; hence, it functions as a dependent variable. The symbol CSDis denotes the designation. A principal component analysis and a multi-tiered fuzzy comprehensive evaluation are used to assess the designation.

Table 1 delineates the detailed framework of the evaluation index system and its associated weights. Its purpose is to calculate the organization's ultimate sustainable development score. An elevated score signifies that the organization can effectively oversee sustainable development initiatives.

Table 1. Index for sustainable development

Variables	Indicators of the variables	Numerical Value of the indictors	Indicators of the variables	Numerical Value of the indictors
Sustainability	Business sustainability	0.081	Ability of company to Advancement	0.471
			Overall Corporate culture of the organisation	0.079
			Ability of company to operate in the industrial and economic environment	0.510
	Environmental sustainability	0.610	Resources spent by the company in actions pertaining to environmental protection	0.633
			Emission of harmful chemicals and gasses by the company.	0.593
			The overall carbon footprint of the Products produced by the company.	0.312

	Element sustainability	0.401	The strength of company's Human capital	0.510
			Ability of the company to Continuously innovate its products and series	0.079
			How efficiently can the company utilize its financial and non-financial resources.	0.501

Source: Author

Green accounting, often known as environmental accounting, represents a multidisciplinary domain that merges the principles of accounting with the insights of environmental studies. Green accounting distinguishes itself from traditional accounting by affirming, recording, and measuring financial metrics in alignment with environmental laws and regulations rather than adhering to conventional standards. Provide corporations with environmental data to facilitate well-informed development decisions. To achieve effective cost management, guarantee adequate environmental safeguarding, and promote sustainable advancement within organisations. The adoption of green accounting in China is still in its early phases, thus it is regarded as an independent variable. This is represented by the symbol GRACC. Assign a value of 1 to GRACC in the event that the organisation utilises green accounting practices; if not, assign a value of 0.

The progress of an organisation is fundamentally dependent on the backing of the community. Outstanding performance in corporate social responsibility is crucial for the continuous progress of society. Although there are costs involved, the implementation of meaningful social responsibility can grant organisations access to vital developmental resources. As a result, CSDis acts as the standard by which companies disclose their commitments to social responsibility. In order to measure the substitution variable represented by the symbol CSDis, we employ the corporate social responsibility information disclosure quality score as provided by the Ruling Global Responsibility Rating Company. The aspect data score undergoes concurrent processing. Examine the exponential function: The quality of information disclosure regarding corporate social responsibility is signified by an advanced logarithm.

Furthermore, to capture their influence, use two dummy variables to represent age of the firm and industrial sector to which the firm belongs. Table 2 provides a comprehensive overview of the definitions and descriptions of all variables.

Table 2. Details of the variables used in research

Type of variable	**Name of Variable**	**Symbol**	**Measurement criterion**
Dependent variable	Sustainability	Sust	The company's potential for sustainable development will increase in accordance with the magnitude of its educational value,

			stemming from the formulation of plans and the establishment of a thorough assessment index system, as seen in Table 1.
Independent variable	Implementation of green accounting	GrAcc	Implementation of green accounting practices by the company in line with regulatory requirements and global best practices related to disclosure.
Moderating variable	Social responsibility disclosure	CSDis	Utilize the quality score of corporate social responsibility disclosure from the Ruling Bad Ball Responsibility Rating Company as a benchmark. Corporate social responsibility (CSR) disclosures exhibit superior quality when they possess educational merit.
Control variables	Financial Leverage	FinLev	Debt to Asset ratio of the company
	Returns on Assets	ROA	Operating profit of the company/ average assets held by company during the year.
	Level of education of the of the executives of the company.	LvlEdu	The system awards three points for a bachelor's degree or higher, two points for a two-year college diploma or below, and one point for a master's degree in management or lower.
	Ownership Structure	OwnStr	If the company is owned by government i.e. more than 50% of its shares are held by government than 1, otherwise 0
	Size of company w.r.t market capitalisation	Size	Market value of total assets of held by the company
	Age of the company in years	AGE	The overall age of the company since its inception.
	Industrial sector to which company belongs	IndSec	Industrial sector to which company belongs
	Overall effectiveness of internal controls of the company	QIC	By a factor of 100, the internal control guidelines applicable to publicly traded companies significantly diminish. The efficacy of the internal control system is

			intricately linked to its educational significance.
	Quality of Audit	AudQly	Standard audit opinions result in a value of 1, while values of 0 are used otherwise.

Source: Author

3.3 Research Model

To evaluate H1, we will examine the correlation between ecologically sustainable accounting practices and a company's capacity for sustainable growth. This model enhances the previous multiple linear regression model by utilizing the company's capability for sustainable development as the dependent variable and the adoption of green accounting as the independent variable.

$$Sust = \beta_0 GrAcc + \beta_1 FinLev + \beta_2 QIC + \beta_3 ROA + \beta_4 AudQly + \beta_5 LvlEdy + \beta_6 \text{OwnStr} + \beta_7 Size + \beta_8 + \sum \text{AGE} + \sum \text{IndSec} + \in \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ (1)$$

To evaluate the accuracy of Hypothesis H2, one method is to analyze the correlation between the company's sustainability initiatives and its social responsibility declarations. We develop a multiple linear regression model using the following variables: the company's capacity for sustainable development and the quality of social responsibility information disclosure.

$$Sust = \beta_0 + \beta_1 \text{CSDis} + \beta_2 FinLev + \beta_3 QIC + \beta_4 ROA + \beta_5 AudQly + \beta_6 LvlEdy + \beta_7 \text{OwnStr} + \beta_8 Size + \sum \text{AGE} + \sum \text{IndSec} + \in \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ (2)$$

This study investigates the relationship between social responsibility information disclosure standards, corporate sustainability, and the validation of Hypothesis H3. The dependent variable is company sustainability, whereas the independent variable is green accounting implementation. This is a multivariate linear regression model that uses the quality of responsible information disclosure as a moderating variable.

$$Sust = \beta_0 + \beta_1 \text{GrAcc} + \beta_2 CSDis + \beta_3 (\text{GrAcc} * \text{CSDis}) + \beta_4 \text{FinLev} + \beta_5 QIC + \beta_6 ROA + \beta_7 AudQly + \beta_8 \text{LvlEdu} + \beta_9 \text{OwnStr} + \beta_{10} \text{Size} + \sum \text{AGE} + \sum \text{IndSec} + \in \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ (3)$$

4. Results and Discussion

4.1 Descriptive Statistics

The intrinsic connection between variables allows for the evaluation of dispersion as a means of contrasting different enterprises. Leading polluters in China demonstrate a notably restricted capacity for sustainable development, as evidenced by an average SUST grade of 0.51. Some organizations

demonstrate exceptional performance, yet individual firms reveal a reduced ability for sustainable development, as illustrated by the contrasting figures of 0.08 and 0.79, respectively. The details of descriptive analysis are provided in Table 3 below.

Table 3. Descriptive Statistics

Variables	N	Min	Mean	Mid	Max	SD
SUST	512	0.080	0.510	0.390	0.790	1.780
GRACC	512	0.011	0.625	1.148	1.751	0.216
CSDis	512	1.580	6.809	5.684	12.834	1.410
Size	512	21.406	27.055	27.885	29.147	0.205
FinLev	512	0.011	0.489	0.398	0.887	1.353
QIC	512	1.250	6.025	5.798	9.026	1.455
AudQly	512	0.011	0.910	1.273	1.705	0.307
ROA	512	-0.614	0.102	0.068	0.648	2.035
OwnStr	512	0.023	0.637	1.160	1.239	0.489
LvlEdu	512	1.171	2.615	2.671	3.308	0.728

Source: Author

On average, 62.5% of enterprises adopt green accounting practices, with notable extremes of 1.751 and 0.011, respectively. Over fifty percent of polluting enterprises in China utilize green accounting methods; a CSDis value of 6.089 indicates a significant level of social responsibility information disclosure, with extremes of 1.580 and 12.834, respectively. Organisations responsible for considerable environmental degradation have failed to reveal their corporate social responsibility initiatives, as indicated by the 1.410 standard deviation.

The companies in the sample demonstrate similar asset counts, as the average size of the enterprises is in close alignment with the median. Individuals exhibit a significant level of variability. The increasing apprehension regarding environmental issues is evident, with FinLev's average asset-liability ratio recorded at 0.43. Companies with a history of considerable pollution are more likely to face substantial financial difficulties when the need to invest in technologies for environmental protection emerges. The capital structure appears to lack rationality; the average QIC reflecting the effectiveness of the company's internal controls stands at 6.025. The notable difference between the extreme values highlights a substantial divergence in the effectiveness of internal control across the various organizations, even though the findings imply that the organizations sampled have made strides in improving their internal control systems. The average Audit quality (AudQly) score of 0.910 indicates that 91% of organizations have received standard audit opinions. Nonetheless, many conventional audit determinations stand in stark contrast to the well-documented occurrences of financial deception. This suggests that there is still room for improvement in how external audit institutions maintain their independence in auditing practices. In light of the considerable dispersion observed, indicating a notable profitability gap, the average return on assets (ROA) for the sampled enterprises stands at 0.102, which denotes a fairly respectable level of profitability. The average value of ownership structure rights indicates that approximately 56.8% of the surveyed enterprises are located in China. The average education level of

2.61 indicates that executives holding bachelor's degrees or higher primarily comprise the senior management of the sample organizations

4.2 Correlation Analysis

Table 4 shows the results of the correlation analysis, which removes the possibility of multicollinearity between the variables. Following that, we will conduct a multiple linear regression analysis to support our findings. The corporate sustainability competency SUST and the disclosure of social responsibility information both passed the responsibility test at the 1% significance level, suggesting a positive correlation that supports the article's hypotheses H1 and H2. Remains valid. Organizations with a higher debt-to-asset ratio tend to have fewer opportunities for sustainable development. There is a significant correlation between senior management size and educational attainment, return on total assets, audit quality, internal control effectiveness, and businesses' sustainable growth capacity. State-owned enterprises are more suited to sustainable growth. The fundamental reason for this is that state-owned enterprises are more likely to implement severe environmental protection requirements, have a stronger sense of social responsibility, and bear the financial burden of economic growth. Table 4 shows the results of the correlation analysis, which removes the possibility of multicollinearity between the variables. Following that, we will conduct a multiple linear regression analysis to support our findings. The corporate sustainability competency SUST and the disclosure of social responsibility information both passed the responsibility test at the 1% significance level, suggesting a positive correlation that supports the article's hypotheses H1 and H2.

Table 4. Results of Correlation analysis

	SUST	GRACC	CSDis	Size	FinLev	QIC	AUDQLY	ROA	OwnStr	LvlEdu
SUST	1									
GRACC	0.501***	1								
CSDis	0.392***	0.511***	1							
Size	0.146***	0.124*	0.147**	1						
FinLev	-0.151***	-0.412***	-0.293***	-0.112**	1					
QIC	0.301***	0.402***	0.422***	0.159**	-0.424***	1				
AudQLY	0.302***	0.425***	0.443***	0.161**	-0.533***	0.518***	1			
ROA	0.177***	0.400**	0.326***	0.223**	-0.441***	0.444***	0.561***	1		
OwnStr	0.411**	0.445***	0.200**	0.102**	-0.417***	0.303**	0.422***	0.503*	1	
LvlEdu	0.300**	0.401***	0.120***	0.156**	0.113	0.155***	0.314***	0.183***	0.142*	1
The variables' relationships are statistically significant at the 1%, 5%, and 10% levels, respectively, as shown by the ***, **, and * symbols.										

Source: Author

Factors such as size, internal control efficacy, audit quality, return on total assets, and the educational background of top management significantly influence a company's ability to achieve sustainable development. An elevated debt-to-asset ratio diminishes a company's capacity for sustainable

development, as shown by an assessment of control variables. State-owned enterprises also demonstrate superior performance in terms of long-term sustainability. The primary factors contributing to this are the three principal obstacles encountered by state-owned enterprises: elevated social and environmental standards, more accountability for economic development, and more stringent environmental restrictions. To evaluate hypothesis 1, we will examine the correlation between ecologically sustainable accounting practices and a company's capacity for sustainable growth. This model, in contrast to the previous multiple linear regression model, uses the company's capacity for sustainable development as the dependent variable and the implementation of green accounting as the independent variable.

4.3 Discussion of Results

The regression analysis of Model 1 indicated a correlation between corporate sustainability (SUST) and the adoption of green accounting (GRACC), with a regression coefficient of 0.50. This relationship achieved statistical significance at the 1% level. Table 5 presents the results of the regression analysis. Further evidence for Hypothesis H1 is provided by the substantial positive correlation between the variables. Although monetary value remains the predominant metric following the implementation of green accounting environmental regulations, their objective is to foster a more equitable development of the economy and the environment.

As a result, green accounting improves environmental performance, strengthening organizations' sustainable development capacities. A regression coefficient of 0.53 between CSDis and corporate sustainability SUST reached significance at the 1% level, thereby confirming the validity of the corporate social responsibility data in Model 2's regression analysis. An additional piece of evidence supporting Hypothesis H2 is the notable positive correlation observed between sustainable development capabilities. To achieve economic success, organizations are required to promote their offerings to the populace and acquire vital resources from the community for advancement. Corporations hold a dual responsibility for fostering economic progress while ensuring social responsibility.

Table 5. The table containing results of Regression Analysis

Symbols of the research variable	Research Model 1	Research Model 2	Research Model 3
SUST	0.701***	0.602***	0.701***
	-4.03	-4.03	-4.35
GRACC	0.512***		0.521***
	-2.69		-2.75
CSDis		0.601***	0.569***
		-3.08	-3.1
CSDis *GRACC			0.610***
			-3.21
Size	0.400*	0.411*	0.397*
	-1.45	-1.61	-1.78
Lev	-0.609***	-0.621***	-0.656***
	(-2.89)	(-3.52)	(-3.42)

QIC	0.612***	0.630***	0.701**
	-3.01	-3.12	-3.92
AudQly	0.6.01***	0.613***	0.638***
	-3.36	-2.88	-3.41
ROA	0.500***	0.510***	0.532***
	-2.55	-2.68	-2.88
OwnStr	0.443	0.389	0.400*
	-1.63	-1.43	-1.89
Edu	0.561***	0.566***	0.600***
	-2.12	-2.31	-2.75
Adj_R2	0.315	0.361	0.398
F	80.40***	81.01	82.13***
N	512	512	512
AGE	Cont	Cont	Cont
IndSec	Cont	Cont	Cont
The variables' relationships are statistically significant at the 1%, 5%, and 10% levels, respectively, as shown by the ***, **, and * symbols.			

Source: Author

Effective corporate social responsibility initiatives establish higher benchmarks for the clarity and accuracy of reporting, subsequently elevating standards for public knowledge and the accessibility of diverse developmental resources that facilitate sustained advancement.

Undoubtedly, enhancing its capacity for sustainable development represents a crucial measure. When looking at how GRACC can be used in green accounting, Model 3 finds a strong positive relationship (at the 1% significance level) between corporate sustainability (SUST) and the quality of social responsibility information disclosure (CSDis). Adding the cross-multiplying variable (CSDis * GRACC) shows that Model 1 has a better regression coefficient, which shows that there is a link between the company's use of green accounting and its ability to develop in a way that is sustainable. There has been a significant enhancement in the quality of social responsibility information disclosure, indicating that green accounting and the company's sustainable development have progressed notably, especially with sustainable development capabilities. This provides further evidence that corroborates Hypothesis H3.

5. Conclusion, Limitations and Future Research

This article examines how social responsibility initiatives and environmentally sustainable accounting practices might enhance a company's long-term success. This case study examines the environmental impact of polluting Chinese enterprises from 2010 to 2022. The integration of theoretical and practical viewpoints in the research yielded the following primary conclusions: A positive correlation exists between the ability of polluting enterprises to publish social responsibility information and their potential for sustainable development. Green accounting and sustainable development can significantly

benefit corporations with significant pollution footprints when they publish comprehensive social responsibility information. Polluting enterprises can improve their sustainable development potential by adopting green accounting practices.

Enhancing the disclosure of social responsibility information is essential for advancing both the economy and the environment, since it promotes the adoption of green accounting practices. This would enhance and solidify the organization's prospects for sustained success. The regression study of control factors indicates that a larger organization exhibits greater resilience. If you consistently invest in your firms, they will attract external investors, especially if they have a high net present value. Robust internal controls and thorough external audits are essential elements of effective corporate governance that can facilitate sustainable development, which possesses significant potential. As they gain knowledge about the interconnection between the two, executives cultivate a greater awareness of environmental issues. A corporation's capacity to manage debt under increasing pressure from relevant creditors significantly influences its debt-to-asset ratio and long-term growth potential. Adequate investment and financial resources focused on environmental stewardship are essential for achieving sustainable development. We must broaden the definition of social duty.

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