A Study on the Pathways to Enhancing Corporate Value through Carbon Information Disclosure

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DOI: 10.32629/memf.v5i1.1609

Abstract: The low-carbon economy is the current global trend in economic development, and corporate carbon information disclosure is gradually attracting widespread attention in society. By reviewing relevant literature, this study explores the value effects and influencing factors of carbon information disclosure, revealing a significant correlation between carbon information disclosure and corporate value. Comprehensive disclosure is found to contribute significantly to enhancing corporate value. The paper further analyzes the theoretical motivations behind corporate carbon information disclosure and outlines the pathways through which carbon information disclosure enhances corporate value. Corporate disclosure of carbon information is shown to help alleviate the asymmetric information problems faced by investors and managers, enhance environmental performance, and promote green innovation within the enterprise. In conclusion, the above study provides valuable insights for the improvement of carbon information disclosure and the use of carbon information disclosure tools to enhance corporate value.

***Keywords*:** carbon information disclosure, corporate value, corporate performance

1. Introduction

The approval of the "2022 G20 Sustainable Finance Report" during the 2022 G20 Summit signifies an increasing global consensus among countries in the fields of finance and environmental protection. Since then, there has been widespread attention to accelerating the transition to green development and achieving dual carbon goals through the use of environmental information disclosure. Achieving peak carbon and carbon neutrality requires extensive and profound systemic changes in the economic and social systems. The intensification of the greenhouse effect, leading to global climate deterioration, severely constrains the sustainable development of the global economy, becoming a major concern for countries worldwide in their economic development[1, 2]. Among them, the emissions of greenhouse gases such as carbon dioxide are the main source, and reducing carbon emissions has become an urgent task to alleviate climate issues. Countries worldwide urgently need to implement energy conservation and emission reduction, especially China, the largest developing country and the largest emitter of carbon dioxide. China's per capita carbon dioxide emissions already exceeded the world average in 2006. At the 2009 Copenhagen Conference, the Chinese government voluntarily committed to reducing the carbon dioxide emissions per unit of GDP by 40%-45% from 2005 levels by 2020. Therefore, countries worldwide are facing tremendous pressure to reduce emissions. Countries worldwide promote energy conservation and emission reduction in enterprises through the establishment of laws and other systems. In 2022, China will implement the "Enterprise Environmental Information Disclosure Management Measures," and various provinces and cities have identified multiple companies that are required to disclose environmental information, including mandatory disclosure of carbon emissions. This marks a new stage in domestic climate change governance. With the continuous improvement of the carbon emission trading system and against the backdrop of climate governance, environmental regulations on enterprises are becoming increasingly stringent, highlighting the requirements for companies.[3]

Against the backdrop of climate change, enterprises, as microcosmic entities in the market, bear the important responsibility of energy conservation and emission reduction. An increasing number of institutional investors, shareholders, and other investors are beginning to pay attention to the impact of climate change on companies. Climate change is gradually becoming the focus of shareholder proposals, while governments worldwide are increasingly imposing regulations on corporate climate change. For example, the European Union has innovatively established a carbon trading framework globally, driving the development of the world carbon trading market. As early as 2013, the United Kingdom passed the Companies Act, requiring all companies listed in the UK to comprehensively disclose greenhouse gas emission data in their annual reports, making it the world's first country to impose mandatory regulations on corporate carbon emissions. This trend indicates that companies need to proactively address climate change to meet the expectations of society and investors, while also preparing for potentially stricter future regulations and standards.

2. Overview of Carbon Information Disclosure

2.1 Concept of Carbon Information Disclosure

The motivations for carbon information disclosure can be broadly categorized into two types: firstly, compelled disclosure due to government policies; secondly, voluntary disclosure initiated by enterprises. Compared to the former, voluntary carbon information disclosure by enterprises is influenced by various factors, including the proactive assumption of social responsibility by the companies. This leads companies to choose carbon information disclosure in the face of various factors, including public pressure, and such disclosure has a significant positive impact on the value of the enterprise. Public pressure, as an exogenous variable, plays a significant facilitating role in the relationship between government environmental regulations and the impact of carbon information disclosure on the value of the enterprise.[4, 5]

2.2 Relevant Research on Carbon Information Disclosure

Voluntary carbon information disclosure is driven by the rational motivation of intrinsic development and social responsibility within the enterprise, possessing intrinsic drive. In contrast, mandatory information disclosure has broader coverage, ensuring comparability among enterprises and aiding in overall regulation.[6] However, recent controversies surrounding voluntary and mandatory carbon information disclosure primarily focus on whether the quality and content of voluntary disclosure can meet investor expectations. Mandatory information disclosure may result in homogenized information, blocking channels for corporate management to convey positive signals to investors and failing to cover corporate carbon information comprehensively. Voluntary carbon information disclosure by enterprises mainly covers six aspects, including risks and opportunities related to carbon emissions, coping strategies, policies, carbon emissions, emission reduction measures and performance, and carbon emissions trading.[7] Examination of factors influencing carbon information disclosure indicates that under the current system, companies with high and low political affiliations exhibit a "U"-shaped trend in the quality of carbon information disclosure. The impact of mandatory carbon information disclosure systems on companies with low and high political affiliations is not significant; however, for companies with moderate affiliations, the mandatory system significantly enhances the quality of carbon information disclosure.[8]

3. Mechanism Research on Carbon Information Disclosure Enhancing Corporate Value

Stakeholder theory suggests that disclosing carbon information by companies can gain social recognition. By maintaining an excellent corporate image and reputation, it attracts more investors, achieving a capital premium. Investor decisions play a partially transmissive role in the positive driving effect of carbon information disclosure on corporate value. Carbon information disclosure can reduce investor decision costs and investment risks, stimulate more stock transactions, and influence corporate financing efficiency and liquidity, thereby enhancing corporate value.

Due to the presence of information asymmetry, companies need to transmit signals to the market and external entities through observable behaviours and appropriate mechanisms to provide a deeper understanding of the company's actual situation. According to the views of Guo & Gao, companies acquire value recognition by transmitting outstanding signals[4]. Therefore, this theory posits that corporate environmental information disclosure is essentially a process of releasing value signals to the outside. When a company has better environmental performance, it tends to actively disclose detailed environmental information, including achievements in environmental protection and energy conservation. This is done to convey positive signals to the external environment, thereby reducing the uncertainty of environmental information, lowering agency costs, and avoiding adverse selection in commodity and capital markets. On the other hand, when environmental performance is poor, companies disclose less or remain silent. Empirical research by Yan (2014) indicates that companies, through high-quality information disclosure, reduce information asymmetry with investors, boost investor confidence, and consequently lower equity financing costs. [8]Li Li and others (2017) verified the impact of financial and non-financial carbon information disclosure on equity financing costs.[6] They concluded that financial information disclosure has a significantly greater negative impact on equity financing costs compared to non-financial information.

The Social Contract Theory advocates that companies are interconnected with society through a series of "social contracts." The motivation and influencing factors for companies to disclose carbon information aim to obtain legitimacy by meeting societal expectations. According to the views of Clarkson and Richardson, companies face a threat to survival if their operational activities are not socially accepted, leading to a loss of legitimacy. Voluntary carbon information disclosure is seen as an effective means for companies to engage in legitimacy management and maintain their legitimacy status. Yan's research based on legitimacy theory suggests that corporate environmental information disclosure is essentially a legitimacy management process. Faced with greater legitimacy pressure, companies with poor environmental performance tend to influence external perceptions of their environmental management by disclosing more and higher-quality environmental information. This, in turn, improves the company's environmental image, avoids negative market reactions, and enhances corporate value.

Legitimacy theory posits that companies actively engaging in carbon information disclosure can be seen as a behaviour to meet the needs of information users, thereby gaining recognition and support from various parties. Liu Xuexin (2021) conducted an empirical analysis of the relationship between carbon information disclosure levels and the long-term and short-term value of industrial enterprises listed on the Shanghai and Shenzhen A-share markets from 2010 to 2018, as well as the mediating effect of equity financing costs[9]. In the short term, the carbon information of most companies still falls within the scope of voluntary disclosure. Generally, companies with higher carbon inputs or significant carbon performance tend to disclose more carbon information. In Wang Zhiliang's research on carbon information disclosure in Chinese manufacturing enterprises, compared to carbon emission information, companies are more willing to disclose carbon management information and carbon opportunity (risk) information. This is because, relative to non-quantitative information such as carbon management and carbon opportunities (risks), the public is more sensitive to data information. Lin Yinghui found that for companies with more severe pollution, the disclosure of emission data is likely to hurt the company's image. Companies in this situation tend to be more cautious about disclosing data, and consequently, their willingness to disclose is lower[3, 10]. (Figure 1)

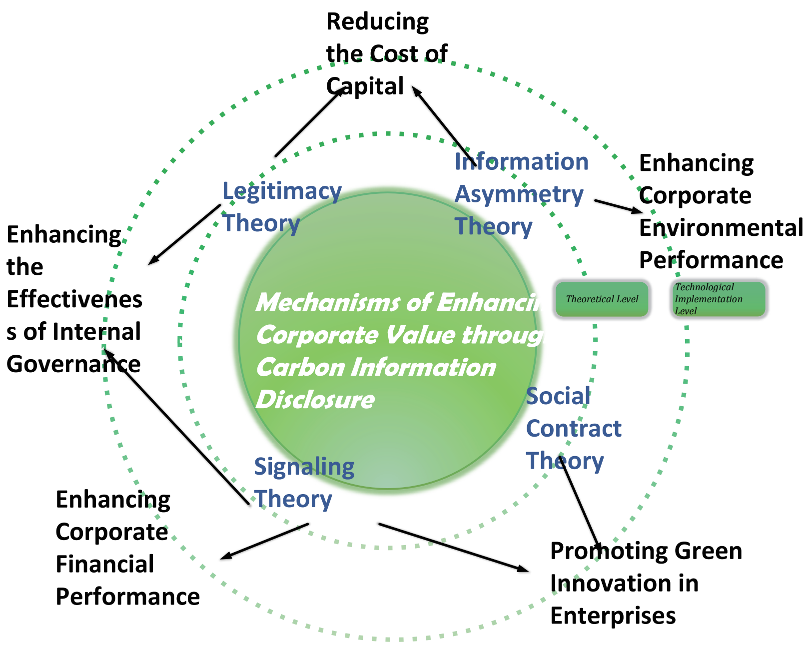

Figure 1. The Mechanism for Enhancing Corporate Value through Carbon Information Disclosure

4. Analysing Corporate Value Enhancement Paths Around Carbon Disclosure

4.1 Promoting Green Innovation

Promoting green innovation is pivotal for companies, as their innovative endeavours heavily rely on the trust of the public. Establishing strong societal trust not only aids companies in securing commercial credit financing but also provides essential financial support for their innovation activities. The company's research and development initiatives, involving the elimination of outdated products, the introduction of new technologies, and the transformation and upgrade of existing processes, contribute significantly to reducing carbon emissions and achieving superior carbon emission performance. Carbon information disclosure serves as an effective means for regulatory authorities to supervise a company's carbon emissions, exerting a substantial impact on the company's production, operations, and carbon emissions. This, in turn, propels companies to be driven by significant incentives to engage in carbon reduction activities. It also encourages the reinforcement of internal funding and institutional support for green technological innovation. This integrated approach, underpinned by transparent carbon information disclosure, not only aligns with regulatory requirements but also fosters a conducive environment for green initiatives and innovation[11, 12].

4.2 Improving corporate environmental performance

Companies with outstanding environmental performance are inclined to proactively disclose environmental information to highlight the differences with poorly performing companies, and poorly performing companies find it challenging to emulate their practices. Companies with outstanding environmental performance are more willing to disclose more environmental information voluntarily. Excellent environmental performance helps reduce the company's future environmental costs, which is seen as "positive news" for investors. Transmitting these "positive messages" to stakeholders helps define the boundary between companies with good and poor performance, enhancing corporate transparency and attracting investor attention. Therefore, companies with outstanding environmental performance tend to have higher-quality environmental information disclosure[13-15].

4.3 Enhancing the Effectiveness of Internal Governance

By enhancing the strength of internal controls, companies can effectively enhance the effectiveness of social responsibility disclosure and ensure the proper implementation of internal control elements. The high quality and efficient completion of carbon information disclosure are crucial for companies. Therefore, improving the quality of internal controls becomes a key means to promote high-quality environmental information disclosure. From a strategic management perspective, strengthening internal controls contributes to better activating external systems, especially in enhancing the level of corporate information disclosure. Internal control information is not only a supplement to accounting information disclosure but also serves as a "bridge" for building the relationship between government supervision and information disclosure quality. It can also inhibit the expropriation behaviour of controlling shareholders, alleviate financing constraints, and reduce the risk of future stock price collapses, becoming an infrastructure and institutional guarantee for corporate governance[16, 17].

4.4 Reducing the Cost of Capital

To encourage enterprises to disclose carbon information, the government has formulated a green credit policy, allowing companies disclosing carbon information to enjoy lower costs of debt financing. As a crucial component of green credit, the disclosure status of carbon information is the aspect that creditors are most concerned about. Additionally, carbon information disclosure has a positive impact on equity costs. Disclosing high-quality carbon information to meet the demands of creditors and equity investors, international debt investors are more willing to invest in companies with better environmental performance. This provides enterprises engaging in carbon information disclosure with additional channels for fund-raising[18, 19].

4.5 Enhancing Corporate Financial Performance

Analyzing from both the perspective of the enterprise itself and stakeholders. From the perspective of the enterprise's interests, enhancing the level of carbon information disclosure helps strengthen the company's control over information, identify high-carbon emission projects, provide targeted support for emission reduction planning, encourage the improvement of resource utilization, and achieve cost reduction and performance enhancement[20]. From the perspective of stakeholders, carbon information disclosure helps them make informed decisions, manifested in three aspects: Firstly, through carbon trading disclosure, it can effectively mitigate the negative impact of future environmental regulations on the company's cash flow; Secondly, it reduces the impact of information asymmetry, making stakeholders more receptive to the company's actions, facilitating more comprehensive decision-making, thereby enhancing the scientific nature of decisions and improving the company's financial performance; Thirdly, the relationship between the company and stakeholders becomes closer, and stakeholders are more willing to invest special resources in companies engaged in environmentally friendly and low-carbon operations. Additionally, actively implementing emission reduction measures aligns with national policy direction and can receive a certain degree of government policy support. The disclosure of carbon information by the enterprise can reduce the impact of information asymmetry, lower the agency and transaction costs of the enterprise, and optimize the allocation of limited resources. At the same time, this also contributes to enhancing investors' understanding of the company's sustainability capabilities, reducing the cost of capital, and increasing the company's profits[1, 11, 21].

5. Conclusion

Carbon information disclosure is closely related to corporate value, and comprehensive disclosure contributes to enhancing corporate value. To meet the expectations of investors and government regulations, as well as to enhance environmental performance, companies employ means such as green technological innovation to optimize production techniques and reduce carbon emissions. Internal control and capital costs within the company also significantly impact the level of environmental information disclosure. During carbon information disclosure, enterprises can not only enhance fundraising capabilities but also attract more attention from institutional investors. Carbon information disclosure contributes to increasing corporate value through both direct and indirect means. Direct enhancement is manifested in the public's expectations for environmental improvement and the constraints imposed by national environmental policies, driving product sales and cash flow growth. Indirect enhancement is achieved through improving internal corporate governance, enhancing relevant financial performance, leveraging media intermediation effects, elevating corporate social status, and playing a role in signalling and mitigating information asymmetry in the stock market.

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