

CARBON CREDITS IN SUSTAINABILITY: NAVIGATING THE RISKS OF GREENWASHING IN CORPORATE CLIMATE ACTION

INTRODUCTION

In the context of current discussions on carbon markets and their implications for corporate sustainability practices, carbon credits are increasingly used by companies to meet regulatory and voluntary carbon reduction goals, but their effectiveness is often questioned due to issues like double counting, lack of transparency, and greenwashing (Marchant et al., 2022). The study's focus on these risks is crucial as it highlights the potential for carbon credits to be misused as tools for greenwashing, where companies may claim environmental responsibility without making substantial internal changes (Abadie et al., 2024). This is particularly significant given the growing scrutiny on corporate environmental claims and the need for transparency in carbon offsetting practices (Ranjan, 2024).

The study also underscores the importance of robust monitoring and verification mechanisms, such as blockchain technology, to enhance the credibility and traceability of carbon credits, thereby reducing the risk of greenwashing (Marchant et al., 2022). Furthermore, the study's exploration of the dynamics between carbon credit affordability and greenwashing propensity provides valuable insights into how market mechanisms can influence corporate behaviour. It suggests that while affordable carbon credits can democratize access and foster positive environmental attitudes, they can also lead to higher greenwashing risks if not properly regulated (Abadie et al., 2024). This dual potential of carbon credits as both enablers of genuine sustainability efforts and as instruments of greenwashing makes the study's findings particularly relevant for policymakers and businesses aiming to enhance the integrity of carbon markets. Additionally, the study's implications extend to the voluntary carbon markets (VCMs), where the fear of greenwashing has deterred genuine firms from participating, highlighting the need for stringent assessment and certification to build trust and encourage broader engagement (Ranjan, 2024).

Overall, the study provides an examination of the role of carbon credits in corporate climate action, emphasizing the need for transparency, accountability, and innovative solutions to mitigate the risks of greenwashing while promoting sustainable practices. Thus, the Research Question of this theoretical essay is “How can carbon credits be integrated into corporate climate strategies to ensure genuine sustainability efforts while mitigating the risks of greenwashing?” Consequently, the aim of the study is to critically examine how carbon credits are utilized within corporate climate strategies and to evaluate the risks of greenwashing that arise when companies rely on carbon credits without sufficient internal emissions reductions. It also seeks to propose best practices to mitigate these risks and enhance the legitimacy of carbon credit markets. The following sections will explore the theoretical underpinnings of carbon credit markets, using legitimacy theory to explain the dynamics of sustainability claims and the ethical implications of greenwashing.

RATIONALE AND DISCUSSION

Legitimacy theory significantly influences sustainability efforts by emphasizing the need for firms to align their operations with societal norms and values to maintain their legitimacy. This theory posits that organizations must be perceived as operating within the value systems of the societies in which they exist, which is crucial for their continued existence and success (Lee & Raschke, 2023). As environmental, social, and governance (ESG) awareness grows, firms increasingly adopt ESG practices as a primary strategy to gain and secure legitimacy. This shift

reflects a broader understanding that corporate responsibilities extend beyond shareholder value to include environmental stewardship and social governance (Lee & Raschke, 2023). The theory also suggests that legitimacy can protect firms from external pressures and sanctions, thereby encouraging them to engage in sustainable practices that resonate with societal expectations (Lee & Raschke, 2023). Furthermore, legitimacy is not only about acceptance but also about reputation, which is shaped by stakeholders' perceptions and cognitive schemas influenced by socio-cultural and institutional settings (Soleimani et al., 2014).

This perception is important as it affects how firms are evaluated in terms of their corporate social responsibility (CSR) initiatives, which are often directed towards employees and other stakeholders who value corporate social performance (Soleimani et al., 2014). In the context of multinational corporations (MNCs), legitimacy theory underscores the importance of developing strategies that align with both internal and external audiences to maintain legitimacy amidst global activism and societal expectations (Minefee & Bucheli, 2021). This involves balancing the interests of various stakeholders, including NGOs and local communities, to ensure that sustainability efforts are perceived as genuine and aligned with broader social goals (Minefee & Bucheli, 2021). Additionally, legitimacy theory is intertwined with stakeholder theory, which advocates for considering the interests of all parties with a legitimate stake in the organization, thereby reinforcing the importance of CSR as a tool for gaining legitimacy and reducing agency costs (Al-Mamun & Zaman, 2023). In summary, legitimacy theory plays an essential role in shaping sustainability efforts by driving firms to adopt practices that align with societal values, thereby enhancing their legitimacy and reputation in the eyes of stakeholders.

The marketing of carbon credits performs a significant role in promoting sustainable business practices by providing financial incentives for reducing carbon emissions and encouraging transparency in environmental performance. This mechanism not only aids in mitigating climate change but also enhances the economic viability of sustainable practices. Table 1 explore various aspects of how carbon credit marketing impacts sustainable business.

Table 1: Impacts of Carbon credit marketing on sustainable business

<i>Feature</i>	<i>Carbon credit impact</i>
<i>Carbon Taxation and Consumer Behavior</i>	Carbon taxes have been shown to effectively reduce the carbon footprint of consumer goods, such as food baskets in supermarkets. This reduction is achieved by incentivizing consumers to make more sustainable purchasing decisions, thereby promoting environmentally friendly behavior (Panzone et al., 2021)
<i>Carbon Trading and Supply Chain Sustainability</i>	The implementation of carbon trade policies, such as the Extended Exergy Accounting method, has been used to optimize coal supply chains. This approach considers economic, environmental, and social aspects, leading to improved sustainability in terms of energy efficiency and reduced emissions (Roozbeh Nia et al., 2024).
<i>Climate Change Disclosure and Financial Health</i>	Firms with higher levels of climate change disclosure performance (CCDP) experience lower financial distress. This relationship is strengthened in companies with robust governance structures, such as risk committees and high audit fees, indicating that transparency in carbon emissions can enhance financial stability (Alshahrani et al., 2023).
<i>Carbon Assurance and Performance Improvement</i>	Obtaining higher levels of carbon assurance can marginally improve a firm's carbon performance. This assurance provides credibility to emissions reports and helps companies align with stakeholder concerns, thereby enhancing their environmental performance and legitimacy (Rohani et al., 2023).
<i>Carbon Emission Trading and Export Growth</i>	In China, the carbon emission trading scheme has been linked to increased exports among regulated firms. This growth is attributed to improvements in technological innovation and productivity, suggesting that market-based environmental regulations can drive economic benefits alongside environmental goals (Yang et al., 2022).

Source: Developed by the authors

While carbon credit marketing offers benefits for sustainable business, it is necessary to consider the potential challenges, such as the need for standardized regulations and the risk of

market manipulation. Ensuring that these systems are transparent and equitable will be essential for maximizing their positive impact on sustainability. There is a potential relationship between carbon credits and greenwashing. Greenwashing involves companies misleadingly portraying their environmental efforts, often by purchasing carbon credits instead of genuinely reducing emissions. This practice can create a false sense of sustainability, as firms may prioritize buying credits over implementing real changes in their operations (CarbiCrete, 2024; ISDA; Linklaters, 2024). However, recent informations suggest that many companies use carbon credits as part of broader decarbonization strategies rather than as a substitute for direct emissions reductions (Bronson Griscom, 2023; CarbiCrete, 2024; ISDA; Linklaters, 2024). Thus, while carbon credits can facilitate greenwashing, they also play a role in legitimate climate action when used responsibly.

The reliance on carbon credits without direct emission reduction efforts can significantly contribute to greenwashing, as it allows companies to claim environmental responsibility without making substantial internal changes. This practice can diminish a company's sense of environmental responsibility, as they may prioritize purchasing carbon credits over investing in genuine decarbonization strategies (Abadie et al., 2024). The lack of transparency in carbon offsetting practices further exacerbates this issue, as it can lead to perceived risks of greenwashing behaviour, where companies appear to be more environmentally friendly than they are (Abadie et al., 2024). The potential for double counting in carbon credit markets, where the same carbon reduction is claimed multiple times, undermines the credibility of carbon credits and can lead to inflated claims of carbon reduction (Marchant et al., 2022). This lack of transparency and accountability in carbon credit markets can result in more atmospheric carbon reduction being reported than is achieved, further contributing to greenwashing (Marchant et al., 2022). Additionally, the fear of greenwashing has deterred genuine firms from participating in voluntary carbon markets, as they are concerned about being associated with misleading environmental claims (Ranjan, 2024).

The availability of alternative carbon mitigation options, such as carbon trading, can reduce the premium on green bonds, thereby diminishing incentives for greenwashing. However, in the absence of such alternatives, companies may resort to issuing green bonds with greenwashing motives to reduce costs (Ranjan, 2024). The strategic use of carbon credits as a resource in B2B markets can also raise concerns about greenwashing, as organizations may use these credits to enhance their sustainability positioning without making real environmental improvements (Abadie et al., 2024). Overall, the reliance on carbon credits without direct emission reduction efforts can lead to a superficial approach to sustainability, where companies focus on the appearance of environmental responsibility rather than achieving genuine carbon reductions. This practice not only undermines the credibility of carbon markets but also poses a significant challenge to achieving meaningful environmental progress.

Companies face significant challenges in balancing financial performance with genuine sustainability efforts, particularly when carbon credits are involved. One major issue is the credibility of carbon credit markets, which is undermined by problems such as double counting, lack of transparency, and greenwashing. These issues can lead to scepticism about the actual environmental benefits of carbon credits, thereby affecting a company's reputation and financial performance (Marchant et al., 2022). Additionally, the reliance on carbon credits can diminish a company's sense of environmental responsibility, as it may encourage firms to externalize their carbon reduction efforts rather than investing in internal decarbonization capabilities (Abadie et al., 2024). This externalization can be financially attractive but may not always lead to genuine sustainability improvements, as it shifts the focus from reducing emissions internally to purchasing offsets.

Furthermore, the high initial costs associated with establishing voluntary carbon markets, especially those linked to forest carbon, pose financial challenges. These costs can discourage

companies from investing in such markets, particularly if the risk of project failure is high, which could impact their ability to issue green bonds in the future (Ranjan, 2024). The potential for carbon credits to be used as a tool for greenwashing further complicates the situation, as companies may prioritize financial gains over actual environmental benefits, thus risking accusations of misleading stakeholders about their sustainability efforts (Peng et al., 2024). Moreover, the lack of clear standards and regulatory frameworks for carbon credits can lead to inconsistencies in how these credits are valued and traded, adding another layer of complexity for companies trying to balance financial and environmental goals (Peng et al., 2024). Overall, while carbon credits offer a mechanism for companies to claim carbon neutrality, the associated challenges highlight the need for improved transparency, regulatory oversight, and a genuine commitment to sustainability beyond mere financial performance.

CONCLUSION

This theoretical essay aimed to critically examine how carbon credits are utilized within corporate climate strategies, focusing on the risks of greenwashing when companies rely on these credits without sufficient internal emissions reductions. The study also sought to propose best practices for integrating carbon credits into sustainability efforts while mitigating greenwashing risks. The analysis demonstrates that carbon credits, while offering a mechanism for companies to offset emissions and claim carbon neutrality, also present significant challenges. The most prominent risk is that companies may use credits to appear environmentally responsible without making real operational changes, leading to greenwashing. This risk is exacerbated by double counting, lack of transparency, and the use of low-quality or unverified credits, which undermine the credibility of carbon markets.

However, the essay also highlights the dual role of carbon credits: they can be effective tools in broader decarbonization strategies when used responsibly, integrated with direct emission reductions, and supported by transparent and robust governance frameworks. Companies should therefore aim to balance the use of carbon credits with genuine sustainability efforts, ensuring legitimacy in their environmental claims and avoiding superficial approaches to sustainability.

This essay, while providing valuable theoretical insights into the intersection of carbon credits and greenwashing, has certain limitations. Firstly, the study is primarily theoretical and does not include empirical data to validate its claims. Future research could involve case studies or quantitative analysis to assess the actual use of carbon credits in various industries. Moreover, the study primarily focuses on the voluntary carbon markets (VCM). Further exploration of compliance-based carbon markets could offer a more comprehensive understanding of how carbon credits function across different regulatory frameworks. Thirdly, the essay does not consider the different regulatory landscapes across regions, which can influence how companies engage with carbon credits and the risks of greenwashing. Future research should explore the impact of regional regulatory variations on carbon credit practices. Finally, while technological solutions like blockchain were mentioned briefly, a deeper exploration of how technological advancements can mitigate greenwashing risks was outside the scope of this essay. Further investigation into this area would enhance the understanding of future developments in the field.

As suggestions for a future research agenda, Table 2 connects the challenges to aimed research questions, providing justifications for the relevance of each question to the topic of carbon credits and greenwashing.

Table 2: Challenges, Research Questions, and Justifications Related to Carbon Credits and Greenwashing

<i>Topic</i>	<i>Challenges and Risks</i>	<i>Related Research Question</i>	<i>Justification</i>
<i>Lack of Genuine Emissions Reduction</i>	Companies may rely on carbon credits instead of actively reducing emissions.	What are the most effective strategies for ensuring that carbon credits complement genuine emissions reductions rather than serving as a substitute?	Understanding how to integrate carbon credits into broader decarbonization efforts is essential for preventing greenwashing and ensuring long-term sustainability.
<i>Poor Quality or Unverified Credits</i>	Carbon credits may be of low quality or unverified, leading to ineffective offsets.	How can businesses verify the quality of carbon credits to mitigate the risk of investing in unverified or poor-quality offsets?	Investigating ways to assess and ensure the quality of credits helps companies avoid investing in ineffective or fraudulent offsets, reducing the risk of greenwashing.
<i>Regulatory and Legal Risks</i>	Companies face legal repercussions if caught greenwashing through carbon credits.	What are the potential legal and regulatory consequences for companies engaged in greenwashing through the misuse of carbon credits?	Understanding the legal and regulatory environment helps businesses mitigate the risks of fines and lawsuits associated with misleading environmental claims.
<i>Stakeholder Distrust</i>	Greenwashing can damage a company's reputation and erode trust with stakeholders.	How does stakeholder perception of greenwashing affect a company's brand reputation and consumer trust in the context of carbon credit investments?	Examining the impact on reputation and trust highlights the importance of transparency and accountability in corporate sustainability efforts.
<i>Complexity of Carbon Accounting</i>	Inaccurate or non-transparent carbon accounting can lead to misrepresenting sustainability efforts.	How can companies develop accurate carbon accounting practices to prevent the misrepresentation of their environmental impact?	This question focuses on improving carbon accounting methods to ensure that companies report emissions and offsets accurately, reducing the risk of greenwashing.
<i>Over-reliance on Offsetting</i>	Companies may depend too heavily on carbon credits instead of implementing long-term emission reduction strategies.	What is the role of carbon credits within a holistic corporate sustainability strategy, and how can over-reliance on offsetting lead to greenwashing?	Exploring how carbon credits fit within broader sustainability strategies can help companies avoid using offsets as a superficial solution to climate action.

Source: Developed by the authors

In conclusion, while carbon credits offer significant potential for corporate sustainability, addressing the risks of greenwashing requires a commitment to transparency, robust governance, and alignment with broader decarbonization efforts. Future research is crucial to bridging the gaps identified, particularly in areas of empirical validation, regional variations, and the integration of emerging technologies like blockchain. Moreover, as carbon credits continue to play a significant role in global sustainability efforts, understanding their proper use within corporate climate strategies is essential to ensuring real environmental impact. With ongoing innovations and increasing scrutiny on corporate environmental claims, the field will benefit greatly from continued academic attention, ensuring that carbon credits serve as genuine tools for decarbonization rather than vehicles for superficial sustainability claims.

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