ISSN: 3080-9843 (Print), ISSN: 3080-9851 (Online)

Green Credit, ESG Ratings, and Corporate Carbon Emission Management Practices

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Abstract

Green Finance Interaction with Corporate Sustainability: An essential topic to explore for investigating whether improvements in carbon emissions are accelerating as a result of changes in market operations. Through a study of the mechanism by which green credit policies and ESG rating information together affect corporate carbon-emission-related behaviour to explore the complementary relationship and contradictions among these two indicators. Based on the theory of stakeholders, signal transmission, regulatory compliance and others, this paper constructs an analytical framework for exploring how green credit acts through financial cost channels and monitoring mechanisms to stimulate low-carbon investments; Based on these theories, it is also expected that changes in ESG ratings will affect companies'carbon disclosure and management behaviours by altering reputation alcosts and capital-market signals. Based on this, it has been found that there is a structural contradiction between the substantial carbon-reduction incentive embedded in well-structured green credit systems and the symbolic-compliance strategy driven by ESG rating divergences; Therefore, to improve corporate carbon-management efficiency, coordination among newgreenfinance-instrument design and ESG-disclosure-standardisation should be established.

Keywords

Green credit, ESG ratings, carbon emission management, green finance, ESG divergence, carbon disclosure, sustainable finance.

1. Introduction

Corporate carbon emissions have accelerated in this period as an indicator to define policy issues for the next ten years. In the Paris Agreement, setting a target for keeping global temperature increases below 1.5 degrees Celsius above pre-Industrial levels is a substantial expansion compared to existing commitments from industrial nations; therefore, enterprises play an indispensable part at present [1]. To a certain extent meet the regulations for emissions that have been set out so far by regulators and enterprises can achieve it through improvements at both law-based regulation levels and financing-market enhancement levels.

Two kinds of financial-market instruments that have appeared relatively prominent among them are green credit policies and ESG ratings, respectively. Green credit policies are increasingly being implemented worldwide among developed countries recently. In May 2012, the China Banking Regulatory Commission issued its first version of "Guiding Opinions on Promoting Green Finance", further strengthening it. According to figures released by the People's Bank of China in subsequent years, green loan balances have been increasing dramatically over recent decades [2]. As of 2022, the total amount issued across all countries in the world's green bond market exceeded 2 trillion US dollars [3]. ESG rating - A kind of evaluation on the Environmental, Social and Governance situation of enterprises; it has also been an essential standard in institutional investors' asset allocation decisions for many years,

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with a global scale reaching over three hundred trillion yuan in professional managed assets as of 2022 [4].

While the two forms of energy transition have been advancing rapidly recently, whether and when they may reduce corporate carbon dioxide emissions to some extent by complementarity or cancellation remains unknown. In response to this problem, three outcomes will be produced in this paper: first, develop an original theory on how green credits and ESG ratings affect carbon management differently from each other; Second, find the structural contradiction between them that enables firms' more strategic than actual responses; And draw regulatory implication for coordinating regulators of green finance and ESG disclosure systems.

2. Theoretical Foundations

2.1. Green Credit Policy: Mechanisms and Regulatory Frameworks

Green credit policy refers to a bank's preferential treatment of green enterprises when providing financing; mainly include an interest reduction program, increased loan access and the customer environment examination requirementss [2]. Based on this correction to both market failures simultaneously - reducing the negative externalities caused by carbon emissions in conventional credit markets and improving information asymmetry among loan providers and borrowers about their environmental performance and climate risk.

China's "green credit guidance principles" recommend that banks incorporate environmental risk factors into the evaluation system when making financing decisions to restrict loan applications by high-pollution businesses, offer special financial assistance for green investment Projects [2]. The European Union's Taxonomy Regulation establishes scientific standards to classify economically activities as environmentally beneficial or with a high risk of environmental damage, thus establishing the basis for green loans within its framework. Over more than 130 banks globally have adhered to the Equator Principles, which are established to set up environment and society risk management guidelines for project financing as parallel soft law green credit system [5]. There are two ways here; First, the reduction in financing costs through an efficient utilisation of resources and lowering the lending rate by qualified entities as this is immediately realised direct financial promotion for eco-friendly behaviour among them; Secondly, introducing environmental-related clauses into green loans makes superiors feel more accountable for these goals.

2.2. ESG Ratings: Methodology, Divergence, and Corporate Incentives

ESG Ratings are composite score indicators reflecting a company's environmental, social and governance (E-S-G) risks by institution-ally invested stakeholders or money-lending companies [4]. The environment usually includes greenhouse gas emissions per unit of output; Carbon-reduction goals; Climate-risk disclosure standards; And Environmental Management System certifications. Berg, Koellbe & Rigobon (2018), after studying six major ES&G assessment institutions: According to their analysis, among any two of these institutes' evaluations, only about 54% would show correlation; Therefore, The spread in ratings differs substantially from that expected by credit evaluation [6]. These are different scopes, weights and methods of measurements for attribute values at this time point. Specifically, there are different treatments for Scope 3 emissions in corporate carbon management; Different recognition rates have been given for value-added Chain Emissions included in environmental assessments by rating institutions.

The ratings provided by different providers differ considerably; therefore, enterprises have no clear idea of which form of environmental-management practises may be market-driven. Some firms might respond strategically by aiming at the methods and perspectives preferred by the top rating agency(s) in influencing investor behaviour to optimise their own information

ISSN: 3080-9843 (Print), ISSN: 3080-9851 (Online)

presentation for ratings, but without changing genuine pollution levels - this is one way through which ESG rating differences harm carbon management motivation.

2.3. Corporate Carbon Emission Management: Frameworks and Metrics

The Greenhouse Gas Protocol, developed by the World Resources Institute and the World Business Council for Sustainable Development, provides the most widely adopted framework for corporate emissions accounting, organizing emissions into three scopes: Scope 1 covers direct emissions from owned sources; Scope 2 covers indirect emissions from purchased energy; and Scope 3 covers all other indirect emissions in the firm's value chain [7]. The comprehensiveness of emissions management across all three scopes is a significant indicator of carbon management depth, as Scope 3 emissions typically represent the largest share of total value chain emissions for most industries. The drivers of corporate carbon management can be organized into three categories: regulatory pressure, including mandatory reporting requirements and carbon pricing; reputational mechanisms, including ESG ratings and voluntary disclosure frameworks; and financing incentives, including green credit and sustainability-linked instruments. The interaction among these three driver categories determines whether corporate carbon management responses are substantive or primarily symbolic.

3. Green Credit as a Driver of Corporate Carbon Management

3.1. Financing Cost and Monitoring Effects

The financing cost channel of green credit can reduce the actual cost of capital for low-carbon investments to stimulate a direct financial incentive for improvements in carbon management. Studies have found in the International Bond Market that there is a green bond premium: The return difference of green-labeling between different issuers within the same period has also been proven by many studies [10], such as Flammer's research on whether green bond financing contributes more capital to companies' ecological development. Firms with substantial capital expenditures for decarbonisation have reduced funding costs to some extent, providing more favourable conditions for their low-carbon investment project development with longer payback periods and higher risks.

A monitoring channel is established through the embedding of environmental assessment and reporting obligations in green-loan agreement terms, forming an orderly supervisory system involving both lenders and borrowers that raises responsibility for these Markets or Regulations do not ensure. Most of them have a detailed use-of-funds plan in their issue reports that can measure the environmental effect of project implementation through various indicators to verify whether they are green bonds in line with the regulations [3]. According to The Climate Bonds Initiative's report on the use of funds from green bonds in 2022, a higher proportion (over 90%) met criteria for adherence to the Use-Of-Proceeds reporting mechanism compared to pure voluntary disclosure scenarios [3].

3.2. Empirical Evidence on Green Credit and Corporate Emissions

Based on research on China's Green Credit Guidelines, there is a reduction in pollutant emissions and improvement in energy consumption per unit by regulated firms that are given green credit support compared with those in similar roles but not included within it [2]. The above results are also in accordance with two operating paths: Financing-cost channels and Monitoring-Chanels. CDP carbon disclosure data offer supplementary information globally; Many of the companies that disclose under CDP, participating in the field of green finance, have reported substantial total emissions reductions across multiple report periods and more than half are attributed to renewable energy investments funded by green instruments [8]. Although an explicit cause-and-effect link exists between the application of green-finance instruments

ISSN: 3080-9843 (Print), ISSN: 3080-9851 (Online)

and individual emissions reduction results at present due to the lack of rigorous methods; Data obtained from several enterprise-level CDP reports demonstrate some interconnections.

4. ESG Ratings and Carbon Management: Incentives, Gaps, and Strategic Responses

4.1. ESG Rating Incentives and Carbon Disclosure

ESG scores impact firm-level carbon mitigation through the capital markets; those with higher environmental assessments attract institutional investors more cheaply and reduce issuance pressures relative to lower-scored companies. Thus, there is a Pressure on environmental performance improvement independent of regulatory requirements. There is a direct relationship between the ESG assessment score and carbon disclosure behaviour; As of 2022, more than 18,700 companies (including about 67% of global market capitalisation) covering approximately six-sevenths of corporate groups from across industries had disclosed greenhouse gas emissions by collaborating with CDP support programs [9]. The expansion is also a reward under the reputational and capital markets driven by ESFG scoring rules for companies' disclosure of their own carbon emission information to participate in environmental management standardisation work conducted by the CDP. Krueger, Sautner and Starks find that institutional investors who have an ESG mission are involved in company's environmental risk disclosure by means of shareholder meetings; Promoting corporate measures for improvement on carbon emission reduction through engaging shareholders [11].

4.2. Rating Divergence and Strategic ESG Management

According to Berg et al., there is a relationship between ESG score divergence and carbon-Governance-Incentive [6]. When significant rating agencies give significantly different environmental scores to the same company, it leads to a disintegrated corporate incentive signal: increasing efficiency through measures favoured by one assessment body has no direct impact on other evaluation outcomes; thus, reducing the capital-market return from carbon management investment. The fragmentation of incentives in the scope of three emissions reduction is more severe among different rating agencies.

Due to the clash between these two aspects, thus giving rise to a separate scheme for categorising environmental situations. Firms can increase the Quality of Revealed Information by focusing on indexes with greater Weights when using favoured assessment systems; But they do not reflect true emission Reductions Required in reality. The phenomenon of ESG washing has garnered more notice among securities regulatory authorities in the United States and Europe recently; it is believed to lack environmental legitimacy due to inconsistent rating approaches for ESG-related companies [5]. Therefore, the boundary between substance and symbols in terms of actual emissions reduction vs. form-fitted ESG certification needs to be determined when evaluating the performance of an index system; As for some enterprises that have been rated positively due to higher scores but actually did not reduce their pollution across all scopes (including Scope 1 and Scope 2), such overvaluation affects both short-term visibility and accurate assessments [6].

5. Discussion

5.1. Complementarity and Tension Between the Two Instruments

Analyse both forms of structure-induced complementarity and structural imbalance in green credits and ESG ratings as carbon management driving forces. Their targets differ as follows: Green credit directly affects investment choices by adjusting the price differential between low-carbon capital expenditures; On the other hand, ESG rating mainly impacts decisions on

ISSN: 3080-9843 (Print), ISSN: 3080-9851 (Online)

information disclosure and corporate governance through reputation risks or Capital Market Return Mechanism for environmental management improvement. Instruments that are subject to both have an increased motivation system compared with those only one.

There is a problem of verification qualification. Green credit frameworks within regulatory system design have directly involved environmental evaluations of financing activities and ongoing compliance monitoring; thus restricting the scope of symbolic adherence [2]. ESG rating projects mainly operate according to the inconsistent methods, creating verifiable blind points in terms of policy-guided strategies. Firms may replace the pursuit of a higher ESG Score by meeting the environmental performance criteria for obtaining green credit qualification, which will then have an adverse effect on actual carbon management investment caused by excessive emphasis on optimising the ESG rating. Cheng, Ioannou, and Serafeim find that firms with higher levels of CSR exhibit better loan conditions; therefore, they argue that there exists an empirical meaning behind the complementary effect among ESG performance, financing cost, and profitability, which disappears under less stringent standards for identifying genuine from nominal impacts [9].

5.2. Policy Implications and Limitations

Coordinated regulatory Design needs to align the incentive Structures of both instruments. The convergence issue with ESG ratings' methodological differences, such as the treatment of scope 3 emissions and balancing between process quality and actual emissions output, will weaken strategic optimisation opportunities and align stronger than necessary with substantive carbon-reduction targets [6]. To reduce the phenomenon of symbolic compliance in ESG ratings through standard integration between green credit and environmental-social responsibility indicators. Expand the compulsory requirement for carbon disclosure under the international sustainability standards board's climate-disclosure guidelines to cut down on ratings agency reliance on self-reported information and enhance verification effectiveness at scale [7].

Some deficiencies restrict these inferences. Empirical data mainly originate from the EU region where green credit mechanisms have been most systemically established; therefore, they might be less applicable in other parts of the world. Attribution of lower corporate emissions by the cause lacks scientific evidence due to insufficient technical observation data. Empirical direction for future research includes empirical design, which uses different forms of qualitative experimental methods to empirically investigate and test the effects on enterprises under the green credit support policies based on diversified factors. Zhang, Zhang and Managi's study found through empirical analysis that the development path of green finance research remains at a basic formation stage; The problem lies in the deficiency of causal verification and cross-national comparison among studies [12].

6. Conclusion

Through an examination of how green credit policy and ESG rating interact to affect a company's carbon emissions control behaviour. Based on this, the identification of financing costs and monitoring pathways for green credit to promote low-carbon investments and enhance carbon transparency; As well as capital markets and reputation channels that influence corporate carbon disclosure and behaviour.

Overall, while green credit (GC) and ESG ratings show a positive correlation with corporate carbon management separately; The total impact depends not only whether they correlate positively or negatively but also by what extent. ESG Rating Divergence Provides Strategic Optima for Separating Score Improvement and Actual Emission Reductions; These May Wane the Substance of True Carbon-Management Investment Based on Well-Built Green Credit Systems. Coordinated regulatory Design - Including ESG rating Standardisation, Mandatory

ISSN: 3080-9843 (Print), ISSN: 3080-9851 (Online)

Carbon Disclosure and integration of Green Credit eligibility into ESIGAS evaluation frameworks are needed to make both instruments consistent with the substance for corporate emissions reduction that a climate transformation necessitates.

References

[1] United Nations Framework Convention on Climate Change. (2015). The Paris Agreement. UNFCCC. https://unfccc.int/process-and-meetings/the-paris-agreement

[2] People's Bank of China. (2022). China Green Finance Development Report 2022. PBC Green Finance Committee. http://www.greenfinance.org.cn

[3] Climate Bonds Initiative. (2022). Green Bond Market Summary 2022. CBI. https://www.climatebonds.net/resources/reports/green-bond-market-summary-2022

[4] Global Sustainable Investment Alliance. (2022). Global Sustainable Investment Review 2022. GSIA. https://www.gsi-alliance.org/trends-report-2022/

[5] Equator Principles Association. (2020). The Equator Principles (EP4). https://equator-principles.com/app/uploads/The-Equator-Principles-July-2020.pdf

[6] Berg, F., Koelbel, J. F., & Rigobon, R. (2022). Aggregate confusion: The divergence of ESG ratings. Review of Finance, 26(6), 1315–1344.

[7] World Resources Institute & World Business Council for Sustainable Development. (2004). The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (revised ed.). WRI/WBCSD.

[8] CDP. (2022). CDP Global Climate Change Report 2022. CDP. https://www.cdp.net/en/research/global-reports/global-climate-change-report-2022

[9] Cheng, B., Ioannou, I., & Serafeim, G. (2014). Corporate social responsibility and access to finance. Strategic Management Journal, 35(1), 1–23.

[10] Flammer, C. (2021). Corporate green Bonds. J Finance Educ, 13 (8), 499-516.

[11] Krueger, P., Sautner, Z., & Starks, L. T. (2020). The importance of climate risks for institutional investors. Review of Financial Studies, 33(3), 1067–1111.

[12] Zhang, D., Zhang, Z., & Managi, S. (2019). A bibliometric analysis on green finance: Current status, development, and future directions. Finance Research Letters, 29, 425–430.