

# The Coordination Path of Carbon Pricing Mechanism and ESG Greenwashing Supervision in China: Implications for Developing Countries

Xi Zhu

Faculty of Social Sciences, The University of Hong Kong, Hong Kong, China

---

**Abstract:** China is faced with the dilemma of how to connect the carbon pricing mechanism with the ESG information disclosure system when global climate regulation has entered the stage of implementation and enforcement. As per the World Bank's report State and Trends of Carbon Pricing 2025, 80 carbon pricing measures were in force across the world by early 2025, covering about 28% of greenhouse gas emissions. The effectiveness of carbon pricing relies on the quality of emission data, and the information constraint function of the ESG system is degraded by the "greenwashing" phenomenon. In 2025, all 427 mandatory disclosure enterprises in the A-share market released ESG reports, but only 226 of them adopted third-party verification, according to the China Association for Public Companies (CAPCO), and the quality of information disclosure was not subject to external supervision. The functioning of the carbon market does not have ESG verification, and the ESG rating has not properly reflected the actual emission performance of firms under the constraint of carbon pricing. Based on the limited regulatory resources in China, this paper proposes to take "accountable carbon performance" as the connecting point and build a collaborative framework from three levels: data interoperability, risk linkage and regulatory coordination, so as to reduce the space for enterprises to selectively disclose and falsely promote, and enhance the credibility of climate governance.

**Keywords:** Carbon pricing, ESG information disclosure, greenwashing supervision, climate governance, policy coordination.

---

## 1. Introduction

Since the implementation of the Paris Agreement, China has faced a systemic contradiction in coordinating its carbon pricing mechanism with the ESG information disclosure system, as the two systems develop independently and cannot effectively coordinate with each other. Carbon price is seen as the main mechanism to meet Nationally Determined Contributions (NDCs). The World Bank reported in its State and Trends of Carbon Pricing 2025 that there are now 80 carbon pricing instruments in place around the world, covering around 28% of greenhouse gas emissions. In the meantime, the ESG system has proliferated across the global capital market. The IFRS Foundation said 36 governments have implemented or are adopting ISSB standards into their regulatory systems as of June 2025. OECD's 2025 Global Corporate Sustainability Reporting states that almost 12,900 listed businesses throughout the world have published sustainability-related information, covering 91% of the global market capitalisation.

These two instruments are naturally complementary in an institutional sense. Carbon pricing makes the cost of carbon emissions clear and gives firms economic incentives to cut emissions, while ESG disclosure increases the exposure of environmental information and helps the market identify enterprises that actually conduct emission reduction initiatives. However, this complementary relationship has not been completely realised in practical operation. There is no method to compare the emission data acquired in the carbon market with the environmental information in ESG reports. Investors are struggling to identify whether a company with a strong ESG rating simultaneously performs well in terms of compliance in the carbon market. In addition, firms actively engaged in carbon trading are not recognised for their emission reduction efforts because of the inadequate

incorporation of carbon price limitations in the ESG framework. This institutional deficit has the immediate consequence of making it impossible to effectively identify "greenwashing" behaviour. ESG ratings and carbon market compliance are two rather separate compliance routes. The cost of selective disclosure of firms is minimal and the possibility of discovery is not significant. This challenge is especially evident in China, where regulatory resources are limited and data infrastructure remains weak [1]. This study discusses the combined path of carbon pricing and ESG supervision in China from the standpoint of institutional coupling.

## 2. Governance Challenges Faced by Carbon Pricing Mechanisms in China

To understand why carbon pricing and ESG should be paired, you first have to grasp the challenges of carbon pricing mechanisms working independently in China. The problem is not so much the design of technical solutions, but the persistent suppression of pricing signals by the institutional context. The World Bank's study released in June 2025 says that there are 80 carbon pricing instruments in the world and ICAP's data also shows that 38 of them are carbon emission trading systems and 20 are under construction [2]. The increase in the number of tools is not matched by an increase in emission reduction activities. The problem is simple. Data. The World Bank's PMI project papers put out the monitoring, reporting and verification systems as the basis for adopting carbon pricing, however China still need to build up a continuous and accurate monitoring network for important emission industries. Due to the lack of data, the quota allocation is not on the right scale and the price curves in the secondary market often send incorrect signals.

Enterprise behaviour choices cause greater real damage. In October 2025, the Ministry of Ecology and Environment re-interpreted the policy, saying that data quality was the "lifeline" of the national carbon market. Later, the remark in Economic Daily directly pointed out the problem of data fraud and management loopholes: Is the monitoring scientific? Is the measurement accurate? Is the evidence timely? That all the technical stuff comes down to whether you can believe the carbon price signal. Enterprises are sensible in their calculations when faced with the expenses of compliance: it is preferable to make strategic tweaks to the data without changing the monitoring criteria than to invest money in the improvement of processes. A set of actions such as selecting the sample period, defining the accounting boundaries and filtering the report content are enough to make the reported emissions look "good" on paper, within the limits of regulatory compliance. Once such fine-tuning becomes the norm, the carbon market loses its ability to direct resource allocation [3].

The challenge is compounded by the deficit on the regulatory side structurally. In China, the regulatory agencies governing the carbon market have no authority to validate data and no means to enforce on-site audits. The information gap between regulators and the regulated is growing wider, the market works as usual, prices are created as usual, but actual attempts to reduce emissions have never been able to catch up. Therefore, the carbon pricing mechanism is internalised by firms as a measurable financial cost, becoming a compliance burden that they have to cope with, rather than a strategic proposition that requires systematic response, the policy goal is suspended [4].

### **3. The Erosion of ESG System Credibility by Greenwashing and Its Institutional Roots**

Carbon price failed because of data difficulties. At the same time, another aspect is that the legitimacy of the ESG system is also gradually being compromised. Greenwashing is characterised by the selective disclosure and symbolic narratives employed by companies to establish a green image that surpasses their actual environmental performance [5]. China is no exception in this regard. The main culprit is not the speculative attitude of individual firms, but the mismatch between incentives and restraints that generates an institutional environment that is not effective.

The theory on the incentive side is simple: ESG ratings have been embedded in the pricing mechanism of the capital market, and the rating level is transferred to the firm valuation through financing charges. Professor Chi Yongsheng of Tsinghua University's Global Securities Market Research Institute has calculated that the financing costs of A-share listed businesses will fall by about 50 to 100 basis points for every level rise in ESG ratings. Driven by interests, firms are pursuing higher ESG scores, but whether the high scores are based on actual emission reduction activities is another thing [6].

The constraint side is definitely lagging. In China, ESG information disclosure is still under a voluntary framework [7], even if there are mandated parts, it is generally in the form of "compliance or explanation" and is a mild restriction. In January 2026, the Ministry of Finance issued the "Guidelines for the Audit of Sustainable Information—Basic Standards (Trial)" which was explicitly implemented on a voluntary

basis. The head of the Chinese Institute of Certified Public Accountants said that at present, the organisations providing auditing services are accounting firms, consulting companies and certification organisations, and there is no single standard, leading to unequal professional quality. The coexistence pattern of multi institutions and multi standards in the auditing market, plus the lack of a false disclosure punishment mechanism make the institutional cost of selective disclosure relatively low.

The ramifications of this imbalance are far more than the judgement errors of individual investors; it is the general failure of the signalling function of the ESG system. When environmental performance embellishment becomes a regular practice, it is difficult for rating agencies to identify true industry leaders, and the link between the rating results and the actual environmental dangers of enterprises continues to decrease. China's situation is even more challenging: local rating agencies are less capable, and the international prevailing rating framework is based on the industrial structure of developed countries, which does not cover small-scale mining and informal manufacturing industries sufficiently. Wang Yao summed it up as "local inapplicability"—the gap between the standard and local reality further intensifies the rating deviation, objectively providing cover for greenwashing.

### **4. Institutional Gaps and Mutual Trust Deficit between Carbon Pricing and ESG Regulation**

Given the inherent shortcomings of the ESG grading framework, an obvious question to pose is: Can carbon pricing harness its data benefits to overcome this flaw? In terms of system design, carbon pricing and ESG do have complementary qualities in the sense that the former internalises the cost of carbon emissions via price signals, and the latter makes emission reduction activities transparent via information disclosure. However, in practice there is a lack of good interfaces between the two and they work separately.

So the problem is largely a data problem. The information disclosure of the carbon market is based on the "Carbon Emission Trading Management Measures" [8]. According to a survey by 21st Century Business Herald, the most important aspects of information disclosure are the reporting and compliance status of key emission units, which is publicly disclosed by the Ministry of Ecology and Environment. The environmental part of ESG reports includes mostly qualitative descriptions, management policies and self-defined performance measures. ESG data remains in the "narrative disclosure" phase, said the Institute of International Green Finance at the Central University of Finance and Economics [9]. The two have separate data standards, statistical cycles and verification criteria—the carbon market follows the accounting and verification technical requirements defined by the Ministry of Ecology and Environment; the third-party verification of ESG reports faces a different situation, as there are no unified standards for verification, making it difficult to compare carbon market emission data with ESG reports, and the quality of professional practice is uneven. Therefore, regulatory agencies can not adequately compare the carbon market emission data of firms with ESG reports, and the technological avenue for finding greenwashing behaviour is blocked.

The institutional gap in the regulatory rationale is more

basic. In 2025, the Central Committee of the Communist Party of China and the State Council issued a paper that clearly mandates the carbon market to change from intensity control to total control of the quota. The carbon market is compliance-based, with a command-and-control logic, focusing on allocation, trading and settlement of quotas. Conversely, the ESG system puts more emphasis on the completion of information disclosure and procedural compliance, depending on exchange regulations and voluntary disclosure systems in the logic of the market self-regulation [10]. The two logics have different sets of operating procedures, regulatory functions, technical competence and legal authorisations. They are even in different government ministries in China. If an enterprise exceeds the emission limit in the carbon market, but is reported as a "green leadership" in the ESG report, there is no automatic warning or cross-checking mechanism between the two systems. Wang Yao described this scenario as "two separate systems", meaning that green finance and ESG investment are moving forward separately, without substantial connection, and the combined force to control emissions has not been consolidated.

## 5. Exploring the Path of Collaborative Governance under China's Institutional Constraints

Therefore, institutional changes in China should not aim at large-scale and complete framework rebuilding, given the disconnection between the two systems. Without the condition for upgrading regulatory infrastructure in a short term, the promotion of the synergy between carbon pricing and ESG supervision should select the low-cost and high-leverage intervention nodes from the existing institutional arrangements, and take a lightweight institutional connection path [11].

The most obvious entrance point is to employ the accounting data of the carbon market as the fundamental reference of ESG environmental information. Enterprises subject to emission control and enterprises voluntarily participating in the carbon trading are required to add the module of "carbon market performance fulfillment" in their ESG reports and use the unified accounting emissions data of the carbon market as the basic index of environmental dimension, substituting the self-established indicators of enterprises. This change does not need the development of a new data collection system, but rather the setting up of a mandatory reference link between the two current reporting systems. Research from the 21st Century Business Herald demonstrates that the existing carbon market information disclosure is mainly about emissions reports and fulfilment issues. "Still overall centred on emissions and fulfilment", and without link with the qualitative description of ESG reports.

Moreover, the emission data gathered in the carbon market can be utilised to develop a reference benchmark for enterprises' environmental performance. The carbon market covers largely industries with substantial carbon emissions, which are also the main areas of concern for ESG investors. If regulatory agencies periodically reveal the industry emission benchmark and performance distribution based on the fulfilment data, investors may evaluate the consistency between the ESG score of firms and the actual performance in the carbon market [12]. In 2025, the General Office of the CPC Central Committee and the State Council issued the

"Opinions on Promoting Green and Low-Carbon Transformation and Strengthening the Construction of the National Carbon Market" [13], requiring "improving the information disclosure system". Key emission units, trading institutions, financial institutions, etc. are required to disclose emissions, fulfilment, trading, pledge, etc. information in a timely manner, laying a foundation for the application of carbon data.

The mechanism of cross-departmental coordination must be established permanently. As noted in the MOF's 2026 auditing standards [14], the third-party verification market in China remains fragmented due to the lack of unified standards, resulting in uneven service quality. In this respect, a joint working group could be set up under the existing cross-department coordination mechanism at the national level to draw up an annual cross-check plan and conduct joint enquiries with companies whose carbon market fulfilment records are significantly different from their ESG ratings. This model will focus the resources of regulation on the most apparent hazards in the enterprise groups.

Achieving such cross-departmental coordination is not without institutional friction. In China's current regulatory framework, the carbon market falls under the purview of the Ministry of Ecology and Environment, while ESG disclosure is overseen by the Ministry of Finance and the China Securities Regulatory Commission. This administrative separation means that data sharing between the two systems requires explicit inter-ministerial agreements. To operationalize the proposed joint working group, a practical first step would be to formalize a data-sharing memorandum between these ministries, specifying the scope, format, and frequency of emission data exchange. While this falls short of a fully integrated regulatory system, it provides a legally binding framework that reduces the transaction costs of inter-agency coordination. China's existing inter-ministerial conference mechanisms—such as the National Leading Group on Climate Change—offer a useful institutional template for such coordination.

## 6. From Data Interchange to Constraint Compatibility in the Design of Institutional Interfaces

The influence of collaborative governance on implementation depends on whether the institutional interfaces work. Carbon pricing and ESG governance should not just stay at the level of advocating principles, but practical and feasible solutions should be provided. This article describes three design elements.

First, set binding reference and verification requirements for emission data in ESG reports for the carbon market. In 2025, the General Office of the CPC Central Committee and the State Council issued a document which required important emission units, trade institutions, financial institutions, etc., to publicly report emission and compliance information, thus fostering data exchange. An organization preparing an ESG report can directly cite the total emission data collected from the carbon market and then have a third-party institution check whether the two sources are consistent. If the emission statistics in the ESG report does not correspond to the records in the carbon market registration system, the system will immediately trigger a regulatory inquiry procedure [15]. The design transfers the data comparison obligation to the company side. The enterprise can explain the differences and

the regulatory authorities do not have to validate the data one by one. This can cut the administrative cost substantially.

Second, integrate the carbon market's industry benchmark data into the ESG grading system. The regulatory authorities periodically publish the benchmark values of carbon intensity by industry and use them to classify the performance of enterprises' compliance. The ESG rating agencies shall refer to this official benchmark in the rating of firms, and explain the corresponding relationship between the score and the benchmark level in the rating report. The carbon market has amassed a large volume of emission data, and these data can be used as a public reference for ESG ratings, and they can help to correct the misjudgment caused by missing information or standard deviations of third-party rating agencies. As the MOF's 2026 auditing standards reveal [16], the fragmentation of China's third-party verification market underscores the need for public benchmarks.

Third, create linkage mechanism, i.e. linking "integrity label" of carbon market to ESG investment goods. Enterprises whose emission statistics have been confirmed without error and whose carbon intensity has been reduced year by year will be awarded a "carbon market integrity label". This mark enables companies to undergo a shortened due diligence process for issuing ESG bonds or raising green loans. This positive incentive combines the compliance performance of the carbon market with the convenience of ESG financing, so that firms that really reduce emissions can earn the predicted rewards, and the resistance produced by depending simply on punitive measures can be avoided.

## 7. Conclusion

The mismatch between the carbon market and ESG system in China exists because the coupling relationship between the two was not taken into account in the construction of the system. Poor data quality distorts the price signals in the carbon market and greenwashing is common, undermining the legitimacy of the ESG system. In fact these two problems are two sides of the same coin—they share no common institutional basis. This study presents a partnership-based strategy on "accountable carbon performance". The synergy between price mechanism and information mechanism can be formed by matching on three levels, that is, data interface, benchmark reference and incentive compatibility. Ultimately, the success of this institutional approach hinges on whether it can turn emission reduction from a regulatory burden into an internal driving force for firms.

China should acknowledge the limits of its institutional capacity and market base. The experience documented in this paper also offers lessons for other developing countries with similar institutional constraints. It is better to build low-cost, high-leverage institutional connections between existing systems, rather than seeking a one-step ideal solution: mandatory inclusion of carbon market emissions data in ESG reports; regular publication of industry benchmarks based on compliance records by regulatory authorities; joint enquiries for enterprises with significant discrepancies between ratings and compliance performance; and providing financing convenience for enterprises that continuously reduce emissions through "integrity labels". These modifications have a relatively limited influence on the existing institutional framework but could help to improve the restrictions of the two mechanisms in the short run.

Limitations of the study

Among these measures, a clear sequencing is necessary

given institutional and resource constraints. In the short term (1–2 years), the most feasible priority is to establish a mandatory data referencing mechanism between carbon market records and ESG reports—this requires minimal institutional restructuring and can be achieved through inter-ministerial agreement. In the medium term (3–5 years), industry benchmark publication and joint inquiry procedures can be operationalized as the data infrastructure matures. The integrity label mechanism, which depends on market acceptance, should be positioned as a longer-term objective.

## References

- [1] Anwar, M., Rahman, S., & Kabir, M. N. (2021). Does national carbon pricing policy affect voluntary environmental disclosures? A global evidence. *Environmental Economics and Policy Studies*, 23(2), 211–244. <https://doi.org/10.1007/s10018-020-00283-2>
- [2] World Bank. (2025a). State and trends of carbon pricing 2025. World Bank Group.
- [3] Tan, R., Cai, Q., & Pan, L. (2024). Faking for fortune: Emissions trading schemes and corporate greenwashing in China. *Energy Economics*, 130, 107319. <https://doi.org/10.1016/j.eneco.2024.107319>
- [4] Zhang, W., & Sovacool, B. K. (2025). The "triple burden" effect and "pressure-opportunity paradox" of net-zero transitions: Exploring the political economy of Carbon Border Adjustment Mechanism (CBAM) implementation in the Global South. *Energy Strategy Reviews*, 62, 101913. <https://doi.org/10.1016/j.esr.2025.101913>
- [5] Kathan, M. C., Utz, S., Dorfleitner, G., Eckberg, J., & Chmel, L. (2025). What you see is not what you get: ESG scores and greenwashing risk. *Finance Research Letters*, 74, 106710. <https://doi.org/10.1016/j.frl.2025.106710>
- [6] Fandella, P., Sergi, B. S., & Sironi, E. (2023). Corporate social responsibility performance and the cost of capital in BRICS countries. The problem of selectivity using environmental, social and governance scores. *Corporate Social Responsibility and Environmental Management*, 30(4), 1712–1722. <https://doi.org/10.1002/csr.2441>
- [7] China Securities Regulatory Commission. (2024). Guidelines for sustainable development reporting of listed companies. CSRC.
- [8] Ministry of Ecology and Environment. (2021). Measures for the administration of carbon emission trading. Ministry of Ecology and Environment.
- [9] Abu Afifa, M., Nguyen, N. M., & Bui, D. V. (2025). Environmental, social and governance (ESG) disclosure quality in developing countries: Evidence from the ASEAN region. *Corporate Governance: The International Journal of Business in Society*, 25(7), 1728–1754. <https://doi.org/10.1108/CG-08-2024-0316>
- [10] Redondo Alamillos, R., & de Mariz, F. R. (2022). How can European regulation on ESG impact business globally? *Journal of Risk and Financial Management*, 15(7), 1–19. <https://doi.org/10.3390/jrfm15070296>
- [11] Zhang, J., Qi, F., & Wu, M. (2025). Market-oriented environmental regulation and ESG rating divergence. *Research in International Business and Finance*, 103074. <https://doi.org/10.1016/j.ribaf.2025.103074>
- [12] Treepongkaruna, S., Au Yong, H. H., Thomsen, S., & Kyaw, K. (2024). Greenwashing, carbon emission, and ESG. *Business Strategy and the Environment*, 33(8), 8526–8539. <https://doi.org/10.1002/bse.3777>

- [13] General Office of the CPC Central Committee and the State Council. (2025). Opinions on promoting green and low-carbon transformation and strengthening the construction of the national carbon market. State Council.
- [14] Cai, W., Bai, M., & Davey, H. (2024). Mandatory environmental disclosure policy in the largest carbon emission country. *Pacific Accounting Review*, 36(5), 527–560. <https://doi.org/10.1108/PAR-08-2023-0134>
- [15] Tang, C., Wu, Y., & Liu, X. (2025). Does China's national carbon market play a role? Evidence from corporate ESG performance. *Economic Analysis and Policy*, 85, 1053–1064. <https://doi.org/10.1016/j.eap.2024.12.007>
- [16] Ministry of Finance. (2026). Sustainable information audit business standards No. 6101—Basic standards (Trial). Ministry of Finance.