Carbon Market Regulation and the Credibility of Corporate Sustainability Responses: Evidence from China's Emissions Trading System

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ABSTRACT

Environmental, social, and governance (ESG) performance and carbon disclosure are increasingly used to evaluate firms' low-carbon transition. However, a key concern is whether improved ESG scores and carbon-related disclosure reflect real corporate change or mainly better reporting. This study examines whether China's emissions trading system (ETS) helps address this credibility problem by encouraging firms to make more substantive and transparent sustainability responses. Using Chinese A-share listed firms, this study investigates the effect of regional ETS pilots on two related dimensions of corporate sustainability responses: ESG performance and carbon disclosure quality. A difference-in-differences (DID) analysis shows that ETS exposure significantly improves firm-level ESG performance. To examine whether this improvement is supported by real capability upgrading, this study analyzes the role of green technological innovation. The evidence shows that ETS exposure promotes green technological innovation, which is in turn positively associated with ESG performance. This suggests that firms respond to carbon market pressure not only through formal compliance or disclosure, but also through innovation-based upgrading. To further assess the credibility of corporate climate responses, this study examines carbon disclosure quality among high-carbon firms. Employing a difference-in-differences-in-differences (DDD) design, the results show that regional ETS pilots enhance the quality of carbon-related disclosure among high-carbon firms. Overall, the findings suggest that China's ETS fosters both substantive corporate action and more credible climate-related communication. By integrating ESG ratings, observable innovation activities, and carbon disclosure quality into a unified framework, this study helps distinguish symbolic compliance from substantive low-carbon transition. The findings provide valuable evidence for regulators and investors, suggesting that market-based climate policies can serve as a credibility-enhancing mechanism by narrowing the gap between corporate sustainability claims and observable low-carbon actions.

Keywords: Emissions trading system/ ESG performance/ Green technological innovation/ Carbon disclosure quality