Guest editorial: Carbon emissions trading and supply chain, information disclosure, and sustainability reporting assurance

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As the global community intensifies its response to the climate crisis, the strategic role of carbon governance, sustainability reporting and environmental transparency in shaping the future of business and finance continues to grow. The escalating urgency of climate change mitigation has led to a global reconfiguration of policy frameworks, corporate strategies and financial systems, prompting both public and private institutions to reconsider their roles in fostering sustainable development. This special issue on "Carbon Emissions Trading and Supply Chain, Information Disclosure, and Sustainability Reporting Assurance" comprises seven original articles that provides new empirical evidence, theoretical insights and policy perspectives on how carbon governance mechanisms intersect with accounting practices, sustainability reporting and supply chain transparency. Together, these studies present a compelling picture of an evolving sustainability accounting landscape, one where carbon disclosure and assurance are not mere compliance tools, but strategic levers for legitimacy, competitiveness and long-term impact.

At the heart of this issue is a fundamental question: can financial markets play a meaningful role in achieving carbon reduction goals? Dawar *et al.* (2024) offered an answer by conducting a comprehensive systematic literature review, combining bibliometric and topic modelling techniques to analyse research at the intersection of financial markets and carbon emission mitigation. Their findings suggest that carbon finance has matured into a vital research area, but also expose gaps, particularly in the empirical understanding of how market-based mechanisms influence corporate environmental behaviour. The paper serves as a timely entry point to this special issue, underlining the importance of aligning financial instruments and emissions goals in both scholarly and policy agendas.

Building on the question of how sustainability information influences financial and governance mechanisms, Alshahrani *et al.* (2024) examined the association between climate change disclosure performance and audit fees among top Australian listed firms. Their results confirm that firms disclosing more comprehensive climate information incur higher audit fees, reflecting both the increased complexity of climate-related risks and the corresponding diligence required from auditors. Notably, governance structures such as board independence and audit committee characteristics moderate this relationship, revealing the intricate link between sustainability reporting and traditional financial oversight. This study provides tangible evidence of how climate risk is being priced into assurance services, with significant implications for corporate accountability and risk management.

At the sectoral level, Kazemian *et al.* (2024) offered a deep dive into Australia's agriculture, forestry and fishing industries, which together contributed over 12% of the country's carbon footprint in 2018. Using the IELab input-output platform, the authors disaggregate emissions contributions across subsectors and upstream activities, exposing the

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critical role played by utilities, transport and agricultural practices. Their findings highlight the urgent need for targeted emissions reductions in these sectors and underscore the importance of lifecycle thinking in framing effective climate policy. The granular insights provided by this study not only inform national mitigation strategies but also call for industry-specific reporting frameworks that account for embedded emissions.

The governance of sustainability performance is then scrutinised in Shan and Zhu's (2024) investigation of the relationship between ESG ratings and leverage manipulation in Chinese listed firms. Their analysis demonstrates that higher ESG scores are associated with reduced financial manipulation, particularly in non-state-owned and non-polluting firms. Interestingly, the governance dimension of ESG has the strongest influence, suggesting that transparency and ethical conduct in financial reporting are bolstered by strong environmental and social practices. This reinforces the broader message of this issue: that sustainability reporting does not operate in isolation but influences, and is influenced by, core financial behaviours.

A complementary perspective is offered by Guo *et al.* (2024) on the green credit guidelines (GCG) in China, evaluating the effect of policy-driven environmental regulation on corporate ESG performance. Using a difference-in-differences approach, the authors find that the GCG policy significantly improves environmental disclosure among targeted firms. However, the response is uneven, with evidence of speculative behaviour among firms relying heavily on bank credit. The study's insights into the heterogeneous impact of green finance policies, and the factors that curb opportunism, are particularly relevant for regulators seeking to balance incentives with accountability in transitioning economies.

The importance of institutional design is further explored by Singhania and Bhan (2024), who conduct a meta-analysis of 55 empirical studies to examine the influence of ownership structures on voluntary carbon disclosure. Their findings indicate that institutional and state ownership positively impact disclosure, while managerial and foreign ownership exert little effect. Moreover, institutional ownership appears more influential in countries with civil law traditions and emissions trading schemes, pointing to a context-dependent relationship between governance and transparency. These results offer a much-needed synthesis of the fragmented literature on ownership and carbon disclosure and present a research agenda attentive to legal, cultural and policy differences.

The special issue closes with two structured literature reviews that deepen our understanding of carbon accounting and supply chain transparency. Zhang *et al.* (2024) revisit the foundational tools of carbon accounting in sustainable supply chains by systematically analysing the state of knowledge on life cycle thinking, Scope 3 emissions and the integration of life cycle assessment into sustainability disclosures. Their review identifies persistent gaps in methodological harmonisation and sectoral coverage, offering a roadmap for future research to align carbon accounting with the realities of complex global value chains.

Similarly, Truant *et al.* (2024) provided a comprehensive exploration of the intersection between life cycle thinking, carbon accounting and sustainable supply chain management. Drawing on 78 publications, they synthesise emerging themes such as the significance of Scope 3 emissions and the differences across industries and countries in carbon policies and practices. Their findings underscore the need for harmonised, comprehensive carbon accounting frameworks that capture emissions embedded throughout entire supply chains, reinforcing the imperative for disclosures that reflect both corporate and policy objectives.

Taken together, these papers present an integrated and multidimensional view of carbon accountability. They demonstrate how emissions trading, disclosure practices, assurance, sectoral policy, ownership structures and lifecycle tools each contribute to the evolving architecture of sustainability governance. These contributions not only deepen our understanding of the technical and institutional underpinnings of climate change and carbon reporting but also provoke critical reflection on the role of accounting in shaping our sustainable future.

We hope this special issue will stimulate further dialogue among academics, policymakers, practitioners and standard setters working at the intersection of climate policy, accounting and sustainable finance. As nations strive toward achieving their net-zero goals, the ability to measure, disclose and assure carbon-related information with transparency and rigour will be vital. The contributions herein offer a solid foundation upon which future research and policy innovation can build.

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Further reading

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