
Guest editorial: Climate risk and environmental accounting in a world of change

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This special issue addresses climate risk and its implications for corporate reporting, concomitant with factors that influence environmental disclosures. In recent years, climate risk has emerged as a critical concern for companies, as its profound impacts on operations and performance have become increasingly evident ([World Economic Forum, 2019](#); [Battiston et al., 2021](#); [Jin et al., 2023](#)). This form of risk encompasses a range of factors, including the potential effects of natural disasters, shifts in weather patterns, technological advancements and changes in market, policy and legal landscapes, driven by the seemingly inexorable advance of climate change. Consequently, stakeholders from diverse spheres of influence, including global policymakers, politicians, financial institutions, regulators, environmentally conscious investors, suppliers, consumers and employees are advocates of a transition toward a low-emissions economy, exerting pressure on diverse organizations to disclose the climate-related risks that they confront and how their systems of governance will seek to preclude them ([Cho and Patten, 2007](#); [Eleftheriadis and Anagnostopoulou, 2015](#); [Krueger et al., 2020](#); [Liu et al., 2021](#); [Ozkan et al., 2023](#)).

This advocacy has been underpinned by significant legislative developments, including the 2015 Paris Agreement, the Task Force on Climate-Related Financial Disclosures (TCFD) recommendations and the establishment of the International Sustainability Standards Board during the UN's COP26 summit. Additionally, proposals in countries such as the UK and New Zealand mandating companies to disclose climate-related information have intensified pressure on firms to integrate climate risk management into their accounting processes and disclosures.

In response to these developments, companies are increasingly compelled to develop net-zero business models, prompting a re-evaluation of traditional environmental accounting practices and assurance. Addressing this imperative requires not only recognition of the critical importance of climate risk but also the implementation of operational strategies to mitigate its consequences. Corporate environmental disclosure (CED), at the core of this strategy, is designed to convey firms' climate risks, opportunities, carbon abatement endeavors, actions and accomplishments ([Hrasky, 2012](#)). Scholars have highlighted the pivotal role of CED as a foundational element in combating climate risk, forming a basis for the development of comprehensive strategies to achieve environmental sustainability ([Gallego Alvarez, 2018](#); [Braam et al., 2016](#); [Khalifa et al., 2024](#)). However, the voluntary nature of carbon disclosure, as illustrated by the non-profit carbon disclosure project (CDP), often lacks a dedicated standard to enhance the credibility and comparability of the information disclosed ([Kolk et al., 2008](#); [Berkman et al., 2024](#)).

Environmental accounting, as defined by [Burritt et al. \(2002\)](#), embraces activities, methods and systems for recording, analyzing and reporting the financial and ecological impacts imposed by the environment on a defined economic system, such as a firm, plant, region or nation. Within this framework, [Burritt et al. \(2002\)](#) distinguish between monetary and non-monetary aspects of environmental accounting, asserting the relevance of environmental disclosures to the latter. To explore companies' underlying motivations when engaging in CED, [Hahn et al. \(2015\)](#) examine three theoretical aspects: economic theories of disclosures, sociopolitical theories and institutional theories. According to economic theories, companies undertake voluntary information disclosure based on a cost-benefit analysis ([Clarkson et al.,](#)



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2008). Conversely, sociopolitical theories view CED as a response to social or political pressures exerted by various stakeholders (Hahn and Lülfs, 2014), whereas institutional theory argues that CED is driven by the need to comply with governmental and institutional requirements while simultaneously seeking to maximize profits (Hahn *et al.*, 2015).

During the last decade, there has been notable progress in environmental accounting literature (Guidry and Patten, 2012; Cho and Patten, 2013; Senn and Giordano-Spring, 2020). However, much existing scholarship either overlooks the mandatory requirements related to climate risk (Schneider *et al.*, 2018; Ginglinger and Moreau, 2023) or predates recent legislative developments. On the other hand, extant studies express misgivings about inconsistent approaches to carbon disclosure, the quality of disclosed information and the credibility and comparability of such data (Tauringana and Chithambo, 2015; Depoers *et al.*, 2016; Ilhan *et al.*, 2023). Such disparate disclosure practices not only hinder stakeholders' ability to effectively evaluate climate risk performance (Matsumura *et al.*, 2024) but also fail to address recent legislation governing climate-related issues, especially with regard to physical and transitional climate risks, leaving a significant void in this area of inquiry.

This special issue features a collection of papers exploring these diverse and challenging aspects of corporate reporting, with a particular focus on how firms have responded to the needs of various stakeholders regarding climate risk disclosures, what steps they have taken to identify the problems they confront and how they plan to address them in response to recent legislative and policy developments.

The first paper, by Ghassem Blue, Omid Faraji, Mohsen Khotanlou and Zabihollah Rezaee (title: A corporate risk assessment and reporting model in emerging economies), introduces a model aimed at evaluating and reporting corporate risk, analyzing the underlying indicators of risk reporting (Blue *et al.*, 2024). Through a comprehensive literature review, semi-structured interviews with experts and employing the fuzzy Delphi technique, the study identifies, screens and prioritizes risks. It employs a hybrid Decision-Making Trial and Evaluation Laboratory Model (DEMATEL) method integrated with the analytic network process (ANP) approach, termed DEMATEL-ANP (DANP), to establish relationships between risk indicators and develop a model to calculate risk-reporting scores, particularly within the Iranian context.

The findings of the first paper underscore the primacy of risk disclosure quality over textual properties and quantity, emphasizing the importance of reporting key risks, management's risk mitigation strategies and quantifying their impacts. The study reveals deficiencies in Iranian risk reporting, particularly the lack of quantitative and specific information, with most disclosures characterized as "sticky." While the research's focus on the Iranian reporting environment necessitates caution in generalizing the results, it holds implications for regulators, investors and policymakers globally, offering a framework to evaluate corporate risk reports, identify deficiencies and spur improvements in reporting practices. Moreover, the study contributes to governance literature by emphasizing the social importance of comprehensive risk reporting and sheds light on aspects often overlooked in prior research, offering insights relevant to emerging economies like Iran and beyond, particularly in the context of the evolving landscape of nonfinancial risks and the qualitative nature of risk disclosures.

The second paper, by Ricky Chung, Lyndie Bayne and Jacqueline Louise Birt (title: Determinants of ESG disclosure among listed firms under voluntary and mandatory ESG disclosure regimes in Hong Kong), investigates the determinants of environmental, social and governance (ESG) disclosure, distinguishing between voluntary and mandatory disclosure frameworks in Hong Kong (Chung *et al.*, 2024). Employing regression tests, the authors analyze Bloomberg ESG scores alongside a manually constructed disclosure index based on the 2019 Hong Kong Exchange ESG guide. Results reveal that concentrated ownership negatively correlates with ESG disclosure levels solely during voluntary disclosure periods, suggesting that mandatory reporting may mitigate agency issues.

Additionally, larger firms consistently exhibit higher levels of ESG disclosure across both voluntary and mandatory disclosure phases. Moreover, the study highlights a significant increase in ESG disclosure when sustainability reports are audited by Big 4 accounting firms, particularly under voluntary disclosure conditions. Control variables also demonstrate a notable relationship with ESG disclosure, indicating temporal increases and industry-specific variations.

The findings of this paper contribute to the literature on non-financial disclosure, particularly in the realm of ESG reporting, by exploring the interplay between firm characteristics and ESG disclosure within the context of Hong Kong's regulatory landscape. This study's insights hold relevance beyond Hong Kong, offering valuable implications for stakeholders such as stock markets, preparers, users and sustainability professionals globally. By examining the dynamics of ESG disclosure under both voluntary and mandatory regimes, the findings shed light on how regulatory frameworks influence reporting practices and provide guidance for enhancing transparency and accountability in sustainability reporting across diverse market contexts.

The third paper, by Md Abubakar Siddique, Khaled Aljifri, Shahadut Hossain and Tonmoy Choudhury (title: Effect of market-based regulations on corporate carbon disclosure and carbon performance: global evidence), explores the correlations between market-based regulations and corporate carbon disclosure and performance, examining whether these associations differ across emission-intensive and non-emission-intensive industries (Siddique *et al.*, 2024). Utilizing data from the world's 500 largest companies spanning various sectors over a recent five-year period, the authors employ country-specific random effect multiple regression analysis to test empirical models predicting these relationships. The findings reveal that while market-based regulations significantly and positively impact corporate carbon performance, they do not similarly affect carbon disclosure. Moreover, the study highlights variations in the relationship between regulatory pressures and carbon disclosure and performance across different industry types.

The implications of this research extend to policymakers, practitioners and future researchers, offering insights into the factors driving businesses to enhance their carbon performance and disclosure practices. Despite focusing on large firms, the study prompts future investigations to include small and medium-sized enterprises to provide a more comprehensive understanding. The findings also offer guidance to business managers in recognizing the advantages of adopting market-based regulations, aiding regulators in evaluating the efficacy of such regulations in improving corporate carbon practices and empowering stakeholders to assess and enhance their businesses' reporting of carbon-related information. This study distinguishes itself by using market-based regulations as a proxy for climate change regulations, employing a more inclusive measure of carbon disclosure and performance, and utilizing global multi-sector data, thus contributing novel perspectives to the existing literature.

The fourth paper, by Hasan Dinçer, Serhat Yuksel, Muhammad Ishaq M. Bhatti and Alexey Mikhaylov (title: EMAS III-based analysis of European eco-management for energy efficiency investments), delves into analyzing European eco-management in light of the pressing issue of global warming, with a focus on mitigating factors such as carbon emissions to facilitate future environmentally-conscious energy investments (Dinçer *et al.*, 2024). Employing a fuzzy decision-making model, the study evaluates performance indicators of selected countries based on the EMAS III standard. Utilizing interval type-2 fuzzy DEMATEL and TOPSIS methodology, the research assesses the eco-friendliness, emissions and renewable energy aspects of five European countries. Findings underscore the critical role of eco-friendly energy, followed by emissions and renewable energy, in shaping environmental investments. The study contributes novel insights by identifying significant criteria for environmental and energy efficiency investments and employing a new fuzzy

decision-making model for performance evaluations, integrating expert opinions and datasets to support previous research on energy efficiency investments in Europe.

While this study offers valuable contributions, limitations include its exclusive focus on European countries, suggesting the need for future analyses encompassing broader regions. Additionally, the methodological innovations proposed, such as utilizing different fuzzy numbers and alternative criteria calculation methods like SWARA, hint at avenues for further research to enhance analytical frameworks. Nonetheless, this research fills a crucial gap in evaluating European eco-management performance concerning environmental-friendly and efficient energy investments, thereby offering practical insights for policymakers, investors and stakeholders involved in sustainable energy initiatives.

The fifth paper, by Shabana Talpur, Muhammad Nadeem and Helen Roberts (title: Corporate social responsibility decoupling: a systematic literature review and future research agenda), synthesizes the literature on corporate social responsibility decoupling (CSRD), investigating its causes, consequences and other organizational attributes examined between 2010 and 2020 while offering insights for future research directions (Talpur *et al.*, 2024). Conducting a systematic literature review (SLR) following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework, the authors extract and review 175 published articles, filtering them based on quality and relevancy criteria. Through theme analysis, various themes related to CSRD are identified, including its drivers, consequences and implications in both developed and developing economies. Additionally, the role of CSR communication as a tool for decoupling and recoupling is discussed, offering a comprehensive understanding of CSRD dynamics.

Despite its contributions, this study acknowledges certain limitations and suggests avenues for future research, particularly in exploring country-level policymaking, understanding variations in CSRD across different contexts and identifying cultural and economic barriers hindering the achievement of core CSR goals. The findings suggest practical implications for policymakers and scholars, highlighting the importance of recognizing CSRD as a form of misreporting akin to accounting fraud, especially in light of increasing CSRD scandals indicating a misalignment between corporate CSR initiatives and their intended societal impact. Overall, this study offers a valuable contribution by providing a comprehensive literature review spanning a decade and structuring identified studies into meaningful themes, laying a solid foundation for future research endeavors in the domain of CSRD.

The findings from the papers included in this special issue offer a timely and comprehensive overview of corporate climate risk exposure and its impact on corporate environmental accounting processes and reporting. Collectively, these papers enhance readers' understanding of the interplay between climate risk and corporate reporting. Furthermore, their findings can inform the policy debate about recent developments in climate risk regulations.

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Further reading

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