

Sustainability Transition under Institutional Uncertainty: How Firms Balance ESG and Competitive Performance

Yibo Wang

*Sydney Institute of Language and Commerce Business School, Shanghai University, Shanghai,
China
b160187@163.com*

Abstract. In the context of climate change, increasingly stringent environmental regulations, and rising stakeholder expectations, firms worldwide are facing intensified pressure to accelerate sustainability transitions and embed Environmental, Social, and Governance principles into their strategic decision-making. Nevertheless, institutional uncertainty arising from regulatory inconsistency, policy volatility, and market instability has complicated the implementation of ESG strategies, particularly for firms seeking to sustain competitive performance. This paper examines how institutional uncertainty shapes corporate ESG strategies and how firms manage the tension between ESG objectives and competitive performance. Drawing on a qualitative research approach, the study employs multiple case analysis and comparative analysis to investigate firms' strategic responses to ESG transition across different institutional and market contexts. Through cross-case comparison, the paper analyzes how regulatory instability, shifting policy priorities, stakeholder pressures, and competitive dynamics influence ESG decision-making and sustainability-oriented strategic adaptation. The paper argues that institutional uncertainty does not necessarily prevent firms from pursuing ESG transition, but it requires them to adopt more flexible, context-sensitive, and strategically integrated approaches. It concludes that firms are more likely to balance ESG objectives with competitive performance when ESG is developed as a strategic capability rather than treated solely as a compliance obligation.

Keywords: ESG strategy, competitive performance, corporate strategy, institutional uncertainty, sustainability transition

1. Introduction

In recent years, environmental issues within the ESG framework have become an increasingly significant topic, rather than merely a peripheral concern within corporate social responsibility. From the perspective of corporate development, both internal and external factors play a crucial role in enhancing inter-firm competitiveness [1]. Therefore, ESG transformation should not only be understood as a corporate response to external sustainability pressures, but also as an important mechanism through which firms reshape their competitive positioning. This paper focuses on two main research areas. The primary achievements of this research are presented as follows, first, it uses qualitative analysis to examine the practical difficulties that institutional uncertainty creates for ESG

development. Specifically, firms may find it difficult to formulate stable and long-term ESG strategies when regulatory rules are unstable, policy directions remain unclear, and stakeholder expectations continue to change. Second, through multi-company case analysis and comparative analyses, this paper investigates the dual impacts of sustainability transition on firms. On the one hand, ESG transformation may generate short-term cost increases, resource allocation pressures, and declining profitability. On the other hand, it may also enhance firms' long-term competitiveness, corporate reputation, innovation capability, and organizational resilience. Thirdly, the significance of this study lies in showing that sustainability transition may create short-term cost pressures, while also serving as an important pathway for strengthening firms' long-term competitiveness. Therefore, the study contributes to understanding how firms can balance sustainable development with strategic value under institutional uncertainty.

2. Institutional and profitability challenges in the development of ESG strategy in modern firms

2.1. The development of ESG in modern corporate strategy

In contemporary corporate strategy, ESG is no longer merely a means of constructing a company's external image; more importantly, it has become a crucial framework through which firms address sustainable development, risk management, and managerial optimization. In the past, corporate development strategies were often primarily oriented toward profit maximization and cost reduction, which led some firms to sacrifice the natural environment in pursuit of economic objectives. However, in recent years, under the combined influence of climate change, strengthened regulations, investor pressure, and rising consumer environmental awareness, it has become increasingly clear that companies must integrate environmental and social responsibilities into their core decision-making systems. IFRS S2 Climate-related Disclosures require companies to disclose climate-related risks and impacts associated with their business activities [2]. This also indicates that ESG has gradually been incorporated into the framework of corporate strategic management.

From the perspective of strategic value, ESG can help firms develop long-term competitive advantages. Eccles, Ioannou, and Serafeim found, through a comparative longitudinal study of 180 U.S. companies, that firms which had voluntarily adopted sustainability policies as early as 1993 achieved superior profitability and stock market performance by 2009 compared with peer companies that had not adopted such policies during the same period [3]. This finding suggests that sustainable development should not be understood merely as a form of superficial image construction; rather, it has profound and positive implications for firms' long-term operational performance. Meanwhile, Friede, Busch, and Bassen integrated the findings of approximately 2,200 independent studies and found a positive association between corporate financial performance (CFP) and ESG performance. Moreover, their research indicates that the positive financial effects of ESG remain relatively stable over time [4]. Although the implementation of sustainability strategies may increase firms' short-term costs, from a long-term perspective, such strategies can make a substantially contribution to corporate resilience, operational performance, and future business development.

2.2. Institutional uncertainty and the increase of ESG-related corporate risks

In recent years, driven by both stricter regulatory requirements and the growing environmental awareness of firms, an increasing number of companies have gradually recognized the importance of

sustainable development, and many have begun to prepare for the implement of ESG strategies. However, due to various uncertain factors, some firms find it difficult to accurately assess the costs of ESG investment and to balance ESG objectives with financial and operational considerations.

As mentioned by Chai et al. found that environmental and institutional uncertainty may lead to a decline in firms' ESG scores and ESG ratings, particularly under the influence of financial constraints and industry competition, thereby affecting sustainable investment decisions [5]. In other words, when the institutional environment is characterized by uncertainty, firms tend to adopt more conservative strategies in order to control costs, which indirectly hinders the advancement of ESG strategies. At the same time, because the benefits of ESG-related reforms are often difficult to observe immediately in short term, firms may gradually reduce their attention and commitment to such projects.

This argument is further supported by Zhang et al., who suggest that economic policy uncertainty can inhibit corporate investment because an uncertain environment increases firms' risk-averse tendencies, causing them to postpone or reduce long-term investment [6]. However, Zhang, Farooq, Jamali, and Alam also indicate that although economic policy uncertainty suppresses corporate investment, firms with stronger ESG performance are more likely to continue investing. This is because ESG can help buffer the negative effects of uncertainty by enhancing corporate reputation, reducing costs, and maintaining sustainable market access. Therefore, a vicious cycle may emerge. Firms with stronger ESG performance are likely to become more competitive in the future than firms that have not implemented, or have only weakly implemented, ESG strategies, and this competitive gap may continue to widen over time. For this reason, it is crucial for firms to understand the underlying dynamics of sustainable development and to formulate appropriate ESG-related rules and strategies as early as possible according to their own organizational conditions.

2.3. How firms balance ESG and profitability challenges

The central challenge for firms in balancing ESG commitments with profitability is to convert short-term ESG-related expenditures into long-term value creation. ESG implementation typically requires substantial upfront investment in areas such as green technology development, environmental governance, and sustainable production systems. While these investments may increase short-term financial pressure, they can contribute to long-term operational efficiency, reputational enhancement, and strategic competitiveness. Therefore, firms should not treat ESG as a response to regulatory compliance or disclosure obligations. Rather, ESG goals need to be embedded into core business functions, including product innovation, cost management, supply chain governance, and financing strategies. Through such strategic integration, ESG investment can shift from being perceived as a short-term cost to becoming a durable source of competitive advantage.

By aligning green innovation with ESG objectives and profitability, firms can enhance production technologies and develop more sustainable products and services. Chouaibi et al. found that ESG strengths contribute to firm value and have a significant influence on financial performance [7]. In addition, Zhai et al. suggested that green innovation serves as an important pathway for firms to establish competitive advantages and advance sustainable development [8]. In some contexts, it may also reduce financing constraints and create stronger incentives for continued innovation. Accordingly, a critical way for firms to balance ESG commitments and profitability is to convert ESG investment into technological upgrading and product-level competitiveness, rather than treating ESG as a symbolic or compliance-oriented practice.

Furthermore, firms should adopt a selective and phased approach to ESG investment based on their financial capacity, so as to avoid imposing excessive pressure on business operations. S. Kim et al. found that strong ESG performance contributes to improved corporate profitability [9]. Accordingly, firms should align ESG objectives with operational capabilities, green innovation, and financing strategies to maintain a relatively stable balance between sustainable development and profitability.

3. Case studies of leading firms' ESG strategies

3.1. Apple's ESG strategy: supply chain governance and circular economy practices

As one of the world's leading consumer electronics companies, Apple is characterized by rapid product iteration and relatively short product life cycles. The United Nations' Global E-waste Monitor 2024 reported that 62 million tonnes of electronic waste were generated globally in 2022, while only 22.3% was formally collected and recycled [10]. This indicates that the growth of electronic waste has significantly outpaced the development of formal recycling systems. As a result, Apple is frequently placed at the center of public and academic discussions concerning electronic waste management.

Apple's measures to address environmental challenges can be divided into two main categories. The first category concerns supply chain decarbonization and low-carbon operations. Given that a substantial proportion of Apple's products and emissions are associated with its supply chain, the company has incorporated suppliers into its ESG governance framework. For example, Apple's Supplier Clean Energy Program has generated more than 38 million megawatt-hours of clean electricity [11]. Meanwhile, Apple's 2030 environmental strategy, as presented on its official website, shows that the company has reduced its overall greenhouse gas emissions by more than 60 percent compared with 2015 levels [12]. This progress is largely attributable to Apple's increased use of clean energy and recycled materials in product manufacturing, as well as its substantial investment in environmental initiatives. The significance of these measures lies in the fact that Apple does not treat environmental protection as a short-term reputational campaign. Instead, it has transformed environmental governance into a long-term corporate strategic objective. In this sense, environmental governance is no longer limited to improvements in individual products or specific factories, but has become a systematic goal that covers Apple's global operations, supply chain management, and product design. Overall, Apple's environmental strategy can be categorized into three dimensions. First, the company promotes supply chain decarbonization by reducing manufacturing-related emissions through its Supplier Clean Energy Program. Second, it advances low-carbon operations and clean energy adoption through the Apple 2030 target, which reflects its long-term commitment to emissions reduction. Third, Apple emphasizes circular economy practices and the use of recycled materials in order to reduce reliance on virgin resources and mitigate the environmental pressure associated with electronic waste.

3.2. The Tesla case: a product-driven strategy for low-carbon transition

Tesla's environmental challenges differ from those faced by Apple because the automotive industry has a substantial influence on global carbon emissions. Although Tesla's electric vehicles can contribute to emissions reduction, they also generate challenges related to production costs, market adoption, and supporting infrastructure. The IEA's Global EV Outlook 2024 examines electric vehicle deployment, charging infrastructure, battery demand, investment trends, policy

developments, and the effects of EV adoption on electricity consumption, oil demand, and greenhouse gas emissions. It also discusses life-cycle emissions of electric vehicles and batteries, as well as the impact of EV charging on power grids. This suggests that the environmental responsibilities of electric vehicle manufacturers extend beyond the reduction of tailpipe emissions [13]. They also include broader systemic issues such as the cleanliness of charging electricity, the carbon intensity of battery production, and the adequacy of charging infrastructure.

To address these environmental challenges, Tesla has pursued a product-driven strategy for low-carbon transition. First, the company reduces emissions in the transportation-use phase by promoting electric vehicles as substitutes for internal combustion engine vehicles. Tesla's official disclosures indicate that its customers avoided nearly 32 million metric tons of CO₂ equivalent emissions in 2024 [14]. Second, Tesla links electric vehicles with solar power, energy storage, and charging infrastructure. According to the IEA report *Batteries and Secure Energy Transitions*, battery storage has become one of the fastest-growing clean energy technologies in the power sector [15]. It can be applied not only to utility-scale, residential, and commercial energy storage, but also to microgrids and solar home systems. Since renewable energy sources such as solar and wind power are inherently intermittent, storage technologies can enhance energy reliability and flexibility under diverse operating conditions. In this sense, battery storage represents a critical component of Tesla's broader low-carbon transition strategy.

Tesla's ESG strategy can be characterized as a product-driven approach to low-carbon transition. By integrating electric vehicles, solar energy, and battery energy storage into its core business model, Tesla embeds ESG objectives directly into its primary commercial activities. Compared with Apple, Tesla's strategy places stronger emphasis on the substitution effect of low-carbon products and the broader transformation of transportation and energy systems.

3.3. Comparative case analysis

In the analysis of the strategies of Apple and Tesla one could see that companies might follow different pathways towards ESG transformation, considering their industry specificities, value chains and sources of environmental pressures. The ESG strategy of Apple can be described as largely governance-based and supply chain-focused since the environmental footprint of the company is related to product production, supplier emissions, material, and e-waste. Thus, the ESG strategy of Apple implies decarbonization and clean energy adoption in its supply chain management and circular economy implementation.

However, the approach of Tesla to ESG transformation implies a higher level of focus on the product itself. Namely, the key contribution of Tesla to the process of moving to the low-carbon world includes electric vehicle adoption and combining it with solar power generation and battery storage capabilities. As compared to Apple, the ESG strategy of Tesla is more embedded in its products and overall business model. On the other hand, Tesla also faces several systemic issues associated with carbon-intensive battery manufacturing, cleaner electricity, and sufficient infrastructure for charging stations.

4. Conclusion

The current paper explores the relationship between firm efforts towards ESG transition and institutional uncertainty, as well as balancing ESG initiatives with competitive performance. It is argued that institutional uncertainties associated with regulation, lack of clear policy, and evolving stakeholders' expectations make firm ESG decisions more complicated and costly due to the need

for effective resource management and allocation. Still, institutional uncertainties do not hinder companies from transitioning to a sustainable development path; however, the question remains open regarding whether the company manages to turn the ESG framework into an essential strategic asset. The case of Apple versus Tesla illustrates two different approaches to ESG transition depending on industry specifics and company position within the value chain. In particular, Apple focuses on such activities as sustainable supply chain, use of renewable energy, and circular economy principles to decrease the environmental footprint of manufacturing processes and products during their lifecycle. As for Tesla, it integrates the principles of ESG in its products (e.g., electric cars, solar energy, and battery systems). Both cases demonstrate that ESG transition could be costly, burdensome, and challenging but at the same time improves organizational reputation, innovativeness, flexibility, and competitiveness. Overall, whether firms can balance ESG objectives with competitive performance depends on their ability to align environmental goals with core capabilities, value chain positions, and long-term strategic planning. Nevertheless, this study has several limitations. Since it mainly relies on qualitative case analysis and focuses on large multinational corporations, the generalizability of its findings remains limited, and the resource constraints faced by small and medium-sized enterprises are not fully examined. Therefore, future research could expand the sample to include firms from more industries and combine quantitative data to further examine the relationship among institutional uncertainty, ESG investment, and corporate financial performance.

References

- [1] Hart, S. L. (1995). A natural-resource-based view of the firm. *The Academy of Management Review*, 20(4), 986–1014. <https://doi.org/10.2307/258963>
- [2] Introduction to the ISSB and IFRS sustainability disclosure standards. (2025). *IFRS Foundation*. <https://www.ifrs.org/sustainability/knowledge-hub/introduction-to-issb-and-ifrs-sustainability-disclosure-standards/>
- [3] Eccles, R. G., Ioannou, I., & Serafeim, G. (2014). The impact of corporate sustainability on organizational processes and performance. *Management Science*, 60(11), 2835–2857. <https://doi.org/10.1287/mnsc.2014.1984>
- [4] Friede, G., Busch, T., & Bassen, A. (2015). ESG and financial performance: Aggregated evidence from more than 2000 empirical studies. *Journal of Sustainable Finance & Investment*, 5(4), 210–233. <https://doi.org/10.1080/20430795.2015.1118917>
- [5] Bin-Feng, C., Mirza, S. S., Ahsan, T., & Qureshi, M. A. (2024). How uncertainty can determine corporate ESG performance? *Corporate Social Responsibility and Environmental Management*, 31(3), 2290–2310. <https://doi.org/10.1002/csr.2695>
- [6] Zhang, C., Farooq, U., Jamali, D., & Alam, M. M. (2024). The role of ESG performance in the nexus between economic policy uncertainty and corporate investment. *ScienceDirect*. <https://doi.org/10.1016/j.ribaf.2024.102358>.
- [7] Chouaibi, S., Chouaibi, J., & Rossi, M. (2022). ESG and corporate financial performance: The mediating role of green innovation: UK common law versus Germany civil law. *EuroMed Journal of Business*. <https://doi.org/10.1108/EMJB-09-2020-0101>
- [8] Zhai, Y., Cai, Z., Lin, H., Yuan, M., Mao, Y., & Yu, M. (2022). Does better environmental, social, and governance induce better corporate green innovation: The mediating role of financing constraints. *Corporate Social Responsibility and Environmental Management*, 29(5), 1513–1526. <https://doi.org/10.1002/csr.2288>
- [9] Kim, S., & Li, Z. (2021). Understanding the impact of ESG practices in corporate finance. *Sustainability*, 13(7). <https://doi.org/10.3390/su13073746>
- [10] The global e-waste monitor 2024 – Electronic waste rising five times faster than documented e-waste recycling: UN. (2024). *UNITAR*. <https://ewastemonitor.info/the-global-e-waste-monitor-2024/>
- [11] *Environmental progress covering fiscal year 2025 report*. (2026). Apple. https://www.apple.com/environment/pdf/Apple_Environmental_Progress_Report_2026.pdf
- [12] Apple unveils environmental progress, surpassing 60 percent reduction in global greenhouse gas emissions. (2025, April). *Apple*. <https://www.apple.com/newsroom/2025/04/apple-surpasses-60-percent-reduction-in-global-greenhouse-gas-emissions/>
- [13] IEA. (2024). *Global EV outlook 2024*. IEA, Paris. <https://www.iea.org/reports/global-ev-outlook-2024>

- [14] *Impact report 2024*. (2024). Tesla. https://www.tesla.com/ns_videos/2024-tesla-impact-report-highlights.pdf
- [15] IEA. (2024). *Batteries and secure energy transitions*. IEA, Paris. <https://www.iea.org/reports/batteries-and-secure-energy-transitions>