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Environmental Investments and Financial Performance in the Hotel Industry: a Conceptual Overview with Mainstream and Heterodox Perspectives

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Abstract: *Given the long-standing debate over environmental investments as a potential threat to financial performance, this paper focuses on the environmentally intensive and economically influential hotel industry. The aim of this study is to provide deeper insight into environmental investments and their impact on financial performance, taking into account the institutional pressures and the inconclusive evidence from other industries. The review first considers traditional perspectives that view environmental measures as cost-inducing, followed by the Porter hypothesis, which offers a framework for potential gains in competitiveness and performance. Empirical evidence demonstrates that efficiency improvements, enhanced reputation, and the attraction of environmentally conscious customers are primary mechanisms by which environmental investments improve financial performance. However, short-term risks underscore the need for further research. Overall, the review positions environmental investments in hotels as both an ecological necessity and a strategic driver of long-term financial performance.*

Keywords: hotel industry; environmental investments; financial performance; mainstream perspective; Porter hypothesis

JEL classification: L83, G30, Q50

Introduction

The hotel industry has considerable economic and developmental effects through its contributions to economic growth, employment, and destination competitiveness (Karanovic, 2023; Dogru et al., 2020; Albert, 2016). Moreover, hotel companies fa-

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cilitate the adoption of innovations and the shaping of new tourism trends, thereby contributing to the upgrading of destination offerings (Veiga et al., 2022). These dynamics are also reflected in the economic significance of the hotel industry, which generated approximately 430.34 billion U.S. dollars in revenue in 2024, marking an increase compared to the previous year (Statista Research Department, 2025).

Yet, this rapid growth underscores the industry's considerable environmental footprint, characterized by intensive use of natural resources, high consumption of water and energy, elevated carbon emissions, and enduring ecological impacts (Abdou et al., 2022; Khatter, 2023). Such outcomes are most pronounced during peak seasons when seasonality leads to a concentration of tourists that creates significant pressure on the environment due to overcrowded destinations (Sáez-Fernández et al., 2020). This illustrates the paradoxical nature of tourism, where environmental quality both defines and is degraded by tourist activity (González & León, 2001). Recognizing this challenge, "The Glasgow Declaration on Climate Action in Tourism" was launched in 2021 with the aim of reducing emissions in the tourism sector by at least 50% over the next decade and achieving net zero emissions by 2050 (Sustainable Hospitality Alliance, 2022). In order to reach the proposed goals, the hotel industry must aim to cut emissions by 66% per room annually by the year 2030 and 90% by the year 2050 compared to the 2010 levels (International Tourism Partnership, 2017). Therefore, sustainable investing plays an important role by considering environmental, social, and economic aspects of a company's operations. This concept has particularly expanded in recent years, with the value of sustainable assets growing to tens of trillions of U.S. dollars, with a tendency for further growth (Pástor et al., 2021). Within this broader trend, the environmental dimension stands out as particularly relevant, since many sustainable initiatives are directly linked to investments aimed at enhancing environmental quality (Feng & Sun, 2020; Li & Ramanathan, 2020). Environmental investments thus preserve the natural environment by encouraging investment in renewable energy sources and promoting the development of sustainable technologies, pollution reduction, and enhanced adaptation to climate change (Lović Obradović, 2019).

However, environmental practices can pose a particular challenge for the hotel industry (Kusa et al., 2023). Previous studies indicate that regulatory requirements, industry standards, and stakeholder expectations play a decisive role in the decision to adopt environmental and sustainability practices in the hotel industry (Hamzah et al., 2021; Sánchez-Fernández et al., 2014; Ouyang et al., 2019; Rivera, 2004). In addition to legal obligations related to labour relations, safety, and zoning, hotels are also subject to strict environmental regulations including rules on emissions, waste management, and energy efficiency, in order to avoid financial penalties and other legal sanctions (International Hospitality Institute, n.d.). Besides regulation, decisions concerning environmental investments are also influenced by subsidies. While subsidies can lower operating costs, ineffectively structured incentive schemes may compromise environmental integrity and market efficiency by promoting excessive

energy consumption, enabling greenwashing, and disrupting competition (Paapa & Kambona, 2025). Within such an institutional environment, environmental investment decisions are further challenged by uncertainty arising from the volatility of government incentives, technological risks, difficulties in adapting to new regulations, the possibility that certain technologies may no longer be considered "green" in the future, as well as fluctuations in fossil fuel prices (Lović Obradović, 2019).

Under such circumstances, decisions regarding environmental investments cannot be based only on ethical grounds (Graci & Dodds, 2008). Rather, the effectiveness of private environmental investments depends on whether they align with other business objectives (Rahko, 2023; Daugaard, 2020). Existing research reports mixed findings regarding their relationship with financial outcomes (Fujii et al., 2013; Khalid et al., 2022; Pekovic et al., 2018). From a conventional economic standpoint, environmental protection is typically perceived as a financial burden that may erode firms' performance. This debate highlights a long-standing theoretical divide between traditional cost-based views and alternative perspectives such as the Porter hypothesis, which frames environmental protection as a potential driver of innovation and competitiveness (Ambec et al., 2011; Palmer et al., 1995).

In light of the inconclusive evidence from other industries, this study comparatively analyses mainstream and alternative perspectives on environmental investments and financial performance and examines their implications for the hotel industry. Its contribution is twofold: first, it focuses on the environmentally intensive and economically significant hotel industry and structures existing knowledge through the long-standing theoretical divide between mainstream cost-oriented approaches and innovation-oriented perspectives associated with the Porter hypothesis; second, it highlights the institutional foundation (regulation, certification, stakeholder expectations) as a mechanism that potentially shapes the adoption of environmental practices and their financial outcomes. By synthesising how possible benefits occur, the paper deepens understanding of the conditions under which environmental investments may contribute to financial performance.

The literature included in this paper was identified through September 2025 using searches in Web of Science, Scopus, and Google Scholar, with priority given to peer-reviewed journal articles. The search was conducted in English using combinations of keywords such as "environmental investment," "green investment," "hotel industry," "financial performance," and "Porter hypothesis," with the aim of developing a conceptually structured synthesis of the theoretical debate and empirical findings.

Environmental investments: Conceptual background and policy context

During the 1990s, global governments became more aware of the serious effects of climate change. This led to joint efforts to reduce harmful emissions and take steps

to protect the environment. Since 1995, corporate attitudes toward climate measures have undergone some changes as well, shifting from resistance to more proactive actions. After the adoption of the Kyoto Protocol, some companies chose to follow government guidance and waited for the formal implementation of climate policies before taking concrete steps. On the other hand, certain firms have taken the initiative through emission reduction programs, anticipating future changes in legislation, society, and the competitive environment. This has not only helped them comply with regulations but also laid the foundation for developing sustainable capacities and resources (Kolk & Pinkse, 2007). However, environmental modernization revealed a critical challenge: the market alone is insufficient to drive these transformations. Without political intervention or organized societal support, market mechanisms often fail to ensure that innovations lead to effective action (Jänicke, 2008). This limitation became even more evident during the financial crisis, which exposed systemic vulnerabilities, so the momentum for the green transition was further accelerated. As a result, this transition began to appear in international, regional, and national policies (Bina & La Camera, 2011) and created chances to match economic incentives with environmental goals while working toward a green economy (Allen & Clouth, 2012). An important moment in this process was the 2012 United Nations Conference on Sustainable Development (UNCSD), which brought the green economy to the forefront of global political discussions. This conference offered hope that the concept would receive the necessary political and financial support or, at the very least, acknowledgment of its critical role in shaping sustainable development strategies (Georgeson et al., 2017). In addition, to advance development in a more sustainable direction, the United Nations adopted the 2030 Agenda in September 2015, setting out 17 Sustainable Development Goals as a comprehensive framework for integrating economic, social, and environmental sustainability (United Nations, n.d.). That same year, the escalating urgency of the climate crisis also led to the adoption of the Paris Agreement in December 2015, widely regarded as a universal response to climate challenges (United Nations Framework Convention on Climate Change, n.d.). These policy initiatives position environmental investments as long-term strategic decisions that foster a more stable regulatory framework and mitigate regulatory uncertainty.

In recent years, investments aimed at achieving environmental objectives have attracted increasing attention, extending the traditional macroeconomic view of investments as a key mechanism for stimulating economic activity (Dogru et al., 2020). The literature applies various terms to describe investments aimed at improving environmental outcomes, such as environmental investment, eco-friendly investment, green investment, ESG investing, and responsible investing (Du et al., 2019; Inderst et al., 2012). The concept of corporate social responsibility (CSR) started a long time ago, as a set of societal expectations placed on organisations, including ethical, legal, economic, and self-determined responsibilities over time (Punitha & Rasdi, 2013). Since its emergence in 1924, the emphasis has been on the idea that a company's responsibility goes beyond

just making a profit to also contributing to society and environmental preservation. Over time, CSR principles have inspired the development of ethical, religiously guided investments, also known as green investments (Chițimiea et al., 2021). In addition, the concept of ESG (environmental, social, and governance) was introduced in 2004 to facilitate the integration of these criteria into investment decision-making processes, and since then its positive impact has been increasingly recognized across different contexts, including improved financial performance, enhanced management quality, and reduced risk exposure (World Bank Group, 2004; Eccles et al., 2020; Zumente & Bistrova, 2021).

Within this concept, environmental investments aim to reduce the negative environmental impacts of business operations. They contribute to advancing sustainable consumption and production patterns, promoting resource efficiency, and reducing emissions across product lifecycles (UNEP, n.d.). For instance, these expenditures include investments to preserve air, soil, and water quality; reduce noise pollution; protect against harmful radiation; manage waste and wastewater; and support biodiversity conservation (EEA, 2024). According to Environmental protection expenditure accounts (2023), total environmental investments (excluding the energy sector) in the European Union amounted to €67 billion. The largest portion of these funds, approximately 41.6%, was directed towards waste management, while 26.6% was allocated to wastewater management. The remaining investments were distributed across various environmental priorities such as air pollution reduction, radiation protection, environmental research and development, as well as other activities such as education and administration in the field of environmental protection. In addition, investments were also channelled to biodiversity conservation and landscape protection, in soil and groundwater protection and for noise reduction (Eurostat, 2024). Since these accounts do not cover investments in the energy sector, investments in renewable energy sources alone reached approximately 110 billion U.S. dollars in 2023, representing a growth of over 6% compared to the previous year (International Energy Agency, 2024).

Mainstream vs. heterodox perspective

Traditional perspectives often perceive investments in environmental protection as expensive and uncertain, creating a possible problem for firms' profitability (Salzmann, 2005; Kim & Kim, 2018; Nuzula, 2019). Additionally, as Jaffe et al. (1995) emphasize, firms that allocate resources to advanced technologies and equipment for pollution reduction face significant direct and indirect costs. As a result, these increased costs lead to higher product prices, reducing competitiveness (Ambec et al., 2011). This concern, rooted in mainstream economic perspectives, comes from the conventional approach to measuring economic performance. Traditional metrics focus on the relationship between input resources and outputs in the form of goods and services, while disregarding the contributions of activities that improve environmental quality (Repet-

to, 1990). Pollution, which results from the lack of prices for essential environmental resources like clean air and water, is seen by neoclassical economists as a market failure where the true cost of resource consumption is not reflected in market prices. To solve this issue, economists have proposed the introduction of surrogate prices such as taxes per unit of emissions or through certain fees for releasing pollutants into the environment. These economic instruments are designed to create an incentive for producers and consumers to reduce their environmental impact by making pollution financially costly. In this context, the aim is to internalize these hidden costs into the price system to encourage more sustainable and efficient use of natural resources (Taschini, 2010). Therefore, based on their theoretical framework and underlying principles, neoclassical economists believe that their instruments are more effective than direct regulations, as they allow companies to find the most cost-effective way to reduce pollution on their own (Hilliard, 2004). However, as the true value of nature is often difficult to measure with precision (Nadeau, 2009), Charles Perrings has criticized the prevailing neoclassical reliance on market-based solutions to address environmental challenges. This reliance on market mechanisms highlights a broader issue Perrings points out. He claims that traditional economic models treat environmental challenges separately from resource exhaustion, offering temporary solutions that calm short-term concerns but fail to ensure long-term sustainability. The fundamental deficiency, according to Perrings, is the neglect of the irreversible nature of resource exhaustion, which means that resources, once depleted, cannot be restored, leaving future generations to bear the consequences of unwise economic decisions (Farmer & Kurz, 1992).

The Porter hypothesis emphasizes the responsibility of regulatory authorities to correct market failures and to observe this state from an opportunity perspective (Hilliard, 2004). From this perspective, environmental regulations do not necessarily increase costs or reduce competitiveness. Instead, the Porter hypothesis challenges the static assumptions of the traditional view by reframing regulations not as rigid constraints, but as dynamic drivers of innovation. Within this paradigm, environmental investments are not considered obstacles, rather, they create incentives for firms to invest in innovative activities to meet regulatory requirements. Such innovations can lead to new production processes or improved product specifications, which not only reduce pollution but also lower production costs or increase the product's market value. Regardless, authors refer to this effect as an "innovation offset" approach that can reduce the net costs of adhering to regulations and provide an advantage over competitors. Ultimately, the ability to adapt to environmental regulations becomes a source of competitive advantage for companies that succeed in innovating and adapting to new standards (Porter & van der Linde, 1995).

The empirical testing of the Porter hypothesis has had a significant impact on the scholarly debate. Findings consistently show that the outcomes depend strongly on the context, varying with the type of regulation, the conditions under which it is enforced, and the methodological approaches employed. As a result, the validity of the Porter

hypothesis produces both supportive and contradictory evidence. Sánchez-Medina et al. (2015), for example, demonstrate that within the pottery craft industry in Mexico, compliance with environmental standards, mediated through environmental innovations, improved both economic and ecological performance, thereby confirming the relevance of the Porter hypothesis in the context of emerging economies. The 1987 Montreal Protocol also provides support for the hypothesis as firms that adopted a proactive strategy realized benefits in terms of efficiency gains and strengthened competitiveness (Albrecht, 1998). Evidence from Germany further indicates that profitability gains appear dependent upon innovations that improve resource efficiency (Rexhäuser & Rammer, 2014). Likewise, Lanoie et al. (2008) show that although environmental measures may impose short-term productivity costs, these effects tend to disperse and ultimately reverse, particularly in industries exposed to international competition. By contrast, Broberg et al. (2013) observed no empirical support for the hypothesis in the Swedish manufacturing sector, with environmental investments largely associated with efficiency losses rather than productivity gains. Similarly, Rassier and Earnhart (2010) found that stricter provisions of the U.S. Clean Water Act reduced the profitability of chemical firms instead of spurring cost-saving innovations.

Proactive strategies, such as those proposed in the Porter hypothesis, often face challenges in gaining acceptance in the traditional perspective. This is because environmental policies are typically observed as corrective measures aimed at mitigating negative externalities, rather than as strategic tools for driving structural change and fostering innovation in production systems (Guarini, 2020). Opponents of the Porter hypothesis argue that the positive effects of regulation on profitability are not a general pattern but rather isolated cases (Ambec & Barla, 2006). Therefore, a persistent question remains: If innovations can enhance profitability, why do firms still need regulations to adopt them? To understand this, the idea lies in the power of regulation to act as an external force, driving firms to overcome their organizational inertia (Ambec & Barla, 2002). Beyond just correcting market failures, such institutional pressure also creates the conditions for positive spillovers, as environmentally friendly innovations diffuse across firms and industries and generate benefits beyond individual companies (Guarini, 2020). These spillovers are particularly evident among larger firms and business groups, which are often the first to implement environmental strategies (López-Gamero et al., 2009; Siedschlag & Yan, 2021). By observing these early adopters, other firms gain valuable insights into the benefits of environmental investments, which can reduce uncertainty and accelerate diffusion. This process not only raises awareness among managers but also strengthens incentives to adopt similar practices and reinforces a cycle of environmental innovation across the industry (Siedschlag & Yan, 2021).

Thomas Kuhn observed that scientific progress occurs through paradigm shifts, meaning transformations in the perception and understanding of certain knowledge. According to Kuhn, science advances through such revolutions, where each new paradigm replaces the previous one and brings a completely new perspective on the world

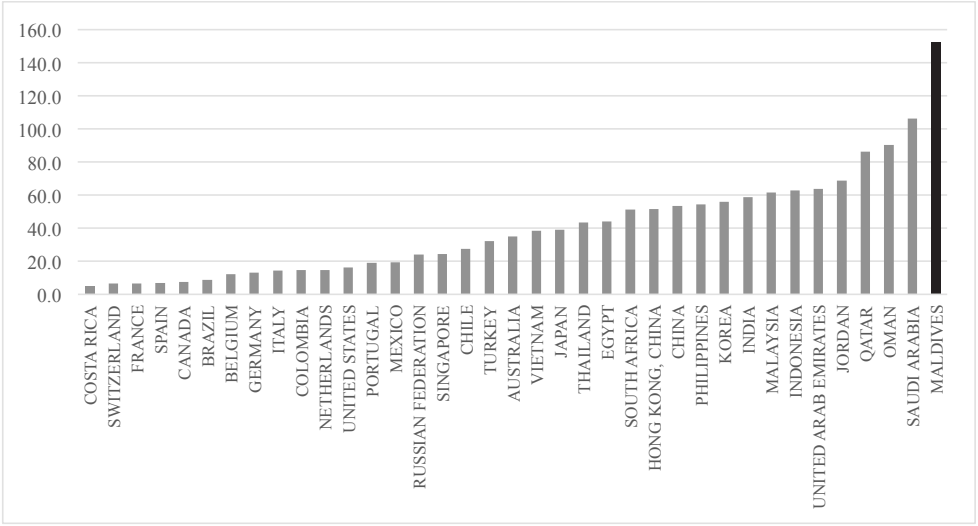
(Boumans & Davids, 2010). This idea can also be applied to economic thought, where the perception of environmental responsibility has moved from static, neoclassical views to more dynamic and institutionally oriented approaches. From an institutional development perspective, regulations enacted by various governments aim to improve environmental conditions, with companies playing an important role in preventing and controlling pollution. Consequently, these environmental regulations encourage companies to actively participate in environmental conservation initiatives and invest in projects that lay the foundation for sustainable growth (Xu & Yan, 2019). Corporations have thus gained the opportunity to adapt their approaches to climate change, shifting from reactive strategies to proactive strategies that involve innovation and market orientation (Bui & De Villiers, 2017). Institutional theory explains this shift by highlighting the role of rules, norms, and standards as fundamental guidelines for shaping social and economic behaviour (Scott, 2004). Unlike the neoclassical emphasis on methodological individualism, institutional economics argues that economic behaviour is shaped by culture and social structures where institutions like governments and laws are seen as essential pillars that enable the proper functioning of the market. In contrast to the static approach of neoclassicism, institutional economics highlights the dynamic and evolutionary nature of the economy, while grounding their arguments in ethical assumptions (Hodgson, 1988, as cited in Jacobs, 1994). From this perspective, treating firms as static entities represents a major anomaly in understanding the relationship between sustainability and business performance. This theoretical debate is particularly relevant in industries that are both environmentally intensive and highly exposed to institutional and consumer pressures. The hotel industry serves as a clear example due to its high visibility to the public and significant resource requirements (Abdou et al., 2022). Hotels are very sensitive to regulations, certifications, and changing customer preferences, with environmental awareness and industry expectations already driving certain transformations (Ouyang et al., 2019). Moreover, alignment with environmental requirements is often certified or awarded special labels that validate the commitment to environmental responsibility (Otto et al., 2018), often resulting in higher occupancy rates and improved financial performance (Chen et al., 2015). Precisely because of that, relying solely on market-based mechanisms in environmentally intensive sectors may present certain challenges, especially with increasing pressures from stakeholders such as regulators, investors, and increasingly aware consumers. Therefore, these numerous and often competing pressures raise an important question: whether hotels are able to satisfy these demands while simultaneously maintaining strong financial performance.

Environmental investments in the hotel industry

The environmental impacts of the hotel industry may not be as visible as those of the manufacturing industry, however, it is increasingly recognised that hotels also bear

significant responsibility for their environmental footprint (Ouyang et al., 2019). Operating throughout the entire year, they consume significant amounts of energy and water for daily functions, including cleaning and various guest services (Tambovceva, 2010). On average, a single room can use up to 1,500 litres of water per day, which is often much more than what local residents consume in areas struggling with water scarcity. In some regions, tourism's water usage can be over eight times higher per person compared to that of the local community (International Tourism Partnership, 2018). Annual water consumption data reveals that hotels with a higher category use more water each year than those with a lower category (Antonova et al., 2023). By analysing the solid waste production in Vietnam, Son et al. (2018) discovered that the highest waste generation rate (WGR) per room was identified in 5-star hotels at 1.61 kg per room per day, while 1-star hotels reported the WGR at 0.39 kg per room per day. The environmental impact of hotels also includes greenhouse gas emissions. For instance, the Maldives has the highest CO_2 emissions, with 152.2 kg per hotel room per night stay, while other Asian countries also contribute significantly due to their heavy reliance on fossil fuels. In contrast, Costa Rica stands out with the lowest emissions, at just 4.7 kg per hotel room per night stay. This achievement is largely due to the country's dedication to renewable energy, with more than 98% of its energy coming from renewable sources since 2014, and 67.5% of that generated by hydropower (Circular Ecology, 2023).

Chart 1: Defra carbon impact per hotel room per night stay 2022.



Source: Created by the author based on data from Department for Business, Energy & Industrial Strategy (2022), Greenhouse gas reporting: Conversion factors 2022 [Data set]. UK Government. https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2022

The environmental focus areas within the hotel industry include energy and water conservation, waste reduction and recycling, air quality protection, regulatory compliance, responsible procurement, environmental education, reduced material use, and the adoption of products with a lower environmental footprint (Tambovceva, 2010; Diaz-Farina et al., 2023). For example, the implementation of advanced energy management systems that enable real-time monitoring of energy consumption, combined with increased reliance on renewable energy sources such as solar and wind power, enhances overall energy efficiency. In addition, some hotels have introduced biodiversity-related initiatives, such as the establishment of marine protected areas and collaboration with local environmental organizations, while simultaneously adopting water-saving measures, including low-flow faucets, toilets, and showerheads, smart irrigation systems, and continuous-batch washing machines. Waste management practices are also being introduced, encompassing the use of biodigesters for food waste treatment, recycling activities, and the application of composting systems (Chemmanur & Fenech, 2024).

The push toward adopting sustainable business practices is shaped by a combination of external and internal factors shown in Table 1.

Table 1: External and internal factors influencing the adoption of environmental practices in the hotel industry

External drivers	Internal drivers
Climate change	Organizational culture
Consumers' and stakeholders' behavior	Investors' preferences
Legislation and regulations	Financial performance
Target market	Reputational considerations
Public financing and incentives	Efficiency gains

Source: Based on a bibliometric and systematic review of the literature, Chițimiea et al. (2021) classify the determinants of green investment into internal and external drivers. This classification has subsequently been operationalized and empirically tested in the hotel context by Abdou et al. (2022).

From an internal perspective, the adoption of environmental initiatives is shaped by several factors, including expected financial performance improvements (Abdou et al., 2022), perceived organizational benefits, and employees' ecological awareness (Hashim et al., 2016). External drivers, in turn, include the growing number of environmentally conscious tourists, whose preferences increasingly favour eco-friendly hotels (Yi et al., 2018), rising concern over environmental degradation and climate change (Abdou et al., 2022), as well as regulatory and competitive pressures (Ouyang et al., 2019).

In response to these drivers, hotels increasingly implement environmental management systems (EMS) and adopt certification schemes to both structure their sus-

tainability efforts and signal responsible business practices. Voluntary environmental management systems (EMS) provide formal recognition by guiding organizations through the development of environmental policies, initial environmental reviews, employee training, and transparent reporting of environmental performance. Internationally recognized standards, such as ISO 14001 and EMAS, support the systematic integration of environmental responsibility into business operations and, therefore, signal a reliable commitment to sustainability (Wagner, 2007). At the same time, different certifications can help hotels align with social norms and expectations (securing legitimacy, stability, and access to essential resources). For example, signalling environmental responsibility enhances hotels' credibility with stakeholders (Kaithlin, 2024). Additionally, Velaoras et al. (2025), drawing on diverse case studies, demonstrated that environmental certifications provide extensive benefits, such as reduced resource consumption, more efficient waste management, and biodiversity protection, while also enhancing profitability and the guest experience. Cavero-Rubio and Amorós-Martínez (2020) found that certified hotels exhibited greater resilience than non-certified hotels during the global financial crisis that began in 2008.

As demand for sustainable accommodation continues to grow, the hotel industry is responding through the wider adoption of sustainability initiatives and certification schemes. This trend is reflected in a 20% increase in the number of certified hotels in 2023, including Bioscore, Green Key, EarthCheck, and LEED (Roiback, 2024). Taken together, environmental certification has evolved into a strategic mechanism through which hotels respond to stakeholder expectations while enhancing their competitive and market position.

Environmental investments and financial performance

Although designed to encourage environmental protection and innovation within organizations, environmental investments are also expected to generate future financial returns (Reinhardt, 1999). While such findings have already been discussed within the Porter hypothesis debate in Section 3, evidence across various industries provides important firm-level insights. From a traditional point of view, environmental investments reduce profitability due to higher costs and lower economic efficiency (Greer & Bruno, 1996; Goto & Sueyoshi, 2009), whereas a contrasting stream of research suggests that environmental investments can enhance financial performance (Hart & Ahuja, 1996; Chen & Ma, 2021; Chariri et al., 2018). For example, Khalid et al. (2022) show improved financial results among Chinese firms following the introduction of the 2015 Environmental Protection Law, with regional development shaping the extent of these gains. Further, Shabbir & Wisdom (2020) identify a positive relationship between both internal and external environmental investments and firms' profitability, focusing on factors such as employee benefits, staff training, and

donations. Nakamura (2011) also notes that stakeholders value companies engaging in environmental initiatives, which can enhance reputation, raise stock prices, and improve profitability.

In the hotel industry, the primary motivation for adopting environmental initiatives is the expectation of improved financial performance (Abdou et al., 2022). Empirical evidence supports this argument, demonstrating that such initiatives attract environmentally conscious tourists, enhance competitive advantage and market share (Popșa, 2023), reduce operating costs (Gu, 2022; Perramon et al., 2022), and strengthen corporate reputation among consumers (Becerra-Vicario et al., 2022). Hotel financial profitability is commonly assessed using indicators such as financial ratios, cash flows, operating margins, and stock returns (Sainaghi et al., 2013). However, when evaluating hotel performance from a revenue perspective, Revenue per Available Room (RevPAR) is widely used, as it captures the relationship between the average daily rate and occupancy rate (Yenidogan et al., 2021). This focus on increased financial performance is closely related to the diverse range of services that hotels can offer, as expanding their offerings enables them to achieve higher margins. Consequently, the drive for profitability encourages hotels to adopt multi-activity operations (Walheer & Zhang, 2018). The main findings concerning the impact of environmental investments on financial performance are therefore presented in Table 2.

Table 2: Environmental investments and financial performance in the hotel industry

Author(s)	Type of environmental initiative	Key financial impacts
Asadi et al. (2020)	Green innovation (eco-materials, green packaging, recycling & product recovery, eco-labelling)	Economic performance improvements through reduced material and energy use, waste management costs, and reduction in environmental penalties
Perramon et al. (2022)	Environmental management practices (environmental savings measurement, green marketing, long-term environmental strategy, and green purchasing policy)	Improved financial performance (increased sales, higher profits, and improved occupancy rates over the past two years)
Mariño-Romero et al. (2018)	Resource consumption reduction, recycling, environmental communication with customers, renewable energy investment, environmental audits, and environmental certifications	Higher RevPAR
Zhang et al. (2017)	Green certification	Ability to charge 6.5% higher room prices without reducing occupancy
Gu (2023)	The construct Green Innovation (less harmful or non-toxic materials, environmentally friendly packaging, recycling, eco-labelling)	Better economic performance (reduced energy and waste costs; improved capacity utilisation, a decrease of environmental penalty costs)
Rodríguez & Armas Cruz (2007)	Social and environmental responsibility (waste recycling, resource and energy savings, pollution prevention, company's ethical behaviour)	Higher relative return on average assets (ROAr)

Author(s)	Type of environmental initiative	Key financial impacts
Kusa et al. (2023)	Greening (waste recycling, water reduction, reduction in electricity usage, and engagement in pro-environmental activities)	Increased performance (new customers, increased market recognizability, improved profitability, more successful products)
Yenidogan et al. (2021)	Comprehensive environmental management practices (energy, water, waste, certifications)	Cost reduction; revenue increase; negative or neutral impact on profitability in the short-term
Becerra-Vicario et al. (2022)	Environmental performance (energy efficiency, waste reduction and recycling, and water management)	Indirect positive effect on financial performance via hotel reputation
López-Gamero et al. (2009)	Early and intensive environmental investment, environmental certifications, and organizational and technical integration of environmental practices	Indirect positive effect on financial performance via differentiation competitive advantage
Bagur-Femenías et al. (2014)	Environmental management (environmental marketing, long-term strategic environmental approach, cost savings, environmental education)	Financial performance is indirectly increased through enhanced competitiveness
Haldorai et al. (2025)	Environmental performance (reduction in waste destined for incineration, reduction in energy consumption, waste recycling, reuse of hotel wastewater, composting of raw material waste, and recycling of community wastewater)	Stronger financial performance in terms of occupancy rate, ADR, RevPAR (The existence of a bidirectional relationship between environmental and financial performance)

Source: Author's own elaboration based on the literature

For instance, Asadi et al. (2020) highlighted the economic benefits of environmental initiatives in the hotel industry through cost optimization, including lower expenditures on materials and energy, more efficient waste management, and the mitigation of financial consequences of environmental incidents. Mariño-Romero et al. (2018) show that hotels that adopt recycling, communicate with customers about environmental issues, invest in renewable energy, conduct environmental audits, and obtain environmental certifications tend to achieve higher revenue per available room (RevPAR). Zhang et al. (2017) found that green hotels are able to charge 6.5% higher room prices without compromising occupancy. Moreover, Gu (2023) examined the positive impact of various green initiatives on the economic performance of five- to seven-star hotels in Shanghai. Among the initiatives analysed were the adoption of non-toxic materials, effective waste management, eco-labelling and environmentally friendly packaging. These initiatives positively contributed to economic performance, measured through reductions in energy consumption costs, waste treatment expenses, penalties for environmental incidents, and improvements in capacity utilization. An empirical analysis of Spanish three- to five-star hotels, using relative return on assets (ROAr) as a measure of profitability, demonstrated that higher levels of social and environmental responsibility significantly enhance hotel performance (Rodríguez & Armas Cruz, 2007). In addition, Kusa et al. (2023) analysed the impact of implementing environmental practices in one- and two-star hotels in Poland and found a

positive contribution to their performance. This effect was further improved by flexibility and inter-organizational cooperation. Furthermore, Yenidogan et al. (2021), in their study conducted in Antalya, Turkey, concluded that environmental practices positively contribute to financial performance through a complementary effect by reducing costs and increasing revenues. However, they also acknowledge that while environmental management offers numerous benefits, it may have a negative or neutral impact on profitability in the short-term. This is because investments in environmental practices often require additional resources, which can temporarily reduce profits. However, even in the short-term, positive effects on profitability can be observed when efficient operations help cover these initial costs, thereby ensuring stable profits. As shown in Table 2, financial performance may also be enhanced through indirect mechanisms. Bagur-Femenías et al. (2014) and López-Gamero et al. (2009) report improvements in financial performance driven by enhanced competitiveness. Additionally, intangible assets such as corporate reputation serve as important indirect drivers of financial performance by strengthening customer trust (Becerra-Vicario et al., 2022; Mariño-Romero et al., 2018; López-Gamero et al., 2009). This relationship matters even more today, as consumers around the world can easily access information and compare their options (Bagur-Femenías et al., 2014). Moreover, an empirical study conducted in Thailand argues that higher levels of eco-efficiency positively affect occupancy rate, average daily rate (ADR), and revenue per available room (RevPAR). At the same time, firms achieving stronger financial results demonstrate a greater propensity to invest in environmental initiatives, thereby confirming the existence of a bidirectional relationship between environmental and financial performance (Haldorai et al., 2025).

Overall, given that the hotel industry operates within a strongly regulated environmental framework, the available evidence suggests that compliance with environmental requirements does not necessarily impose a financial burden. On the contrary, many studies indicate that hotels are able to realize financial benefits through cost savings, efficiency improvements, reputational gains, and the attraction of environmentally conscious customers. This pattern lends conditional support to the view that environmental investments, when strategically implemented, can be compatible with improved financial performance.

Conclusion

In the hotel industry, environmental strategies are beginning to be embedded in operational practices in response to both environmental necessity and institutional pressures. Traditional perspectives often view environmental investments as additional costs that may burden profitability. However, the evidence presented in this paper points to a more nuanced relationship. Environmental responsibility in hotels should not be seen only as a short-term cost issue; rather, it needs to be understood within a

broader strategic and institutional context. The adoption of environmental initiatives in the hotel industry is shaped not only by internal efficiency motives but also by regulatory frameworks, certification schemes, investors` expectations, and evolving consumer preferences. Such a framework reduces uncertainty, enhances legitimacy, and creates structured incentives for environmental innovation. In this respect, the hotel industry represents a relevant setting in which the Porter hypothesis receives conditional support: environmental investments, when strategically implemented, can contribute to competitiveness, cost efficiency, reputational benefits, and ultimately improved financial performance. Overall, the available evidence suggests that in the hotel industry environmental investments do not generally constitute a pure financial burden. Rather, their outcomes appear to depend on different institutional contexts.

In addition, since environmental investments can also refer to financial products such as green bonds, funds, or other market instruments, future studies could expand the scope to include the interaction between such investments and hotels' financial performance. Such an approach could contribute to a deeper understanding not only of the Porter hypothesis but also of the broader relationship between sustainability, innovation, financing mechanisms, and long-term profitability in tourism.

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Not applicable.

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