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Effects of Environmental Profile and CSR Reporting on the Cost of Capital of Firms in the Tourism Sector

Abstract

The Hotel and Tourism industry contributes substantially to the global Gross Domestic Product, which increases economic growth through tax revenues, employment opportunities, and private capital investments. However, this industry is also responsible for depleting natural resources and contaminating water and waste. Hence, this study contributes to the extant research by examining the relationship between sustainable behavior (measured using three proxies —i.e., environmental performance scores, carbon emissions, and the issuance of a corporate social responsibility report) and the cost of equity of a sample of global firms, using data from 2011 to 2022. Our results confirm that sustainable companies in this industry benefit from lower cost of capital. The contribution of this paper is valuable, as it may raise awareness in the industry about the positive financial outcomes that can be achieved when companies align their strategies with the UN Agenda 2030 and the Sustainable Development Goals.

Keywords: cost of equity, CSR, carbon emissions, environmental performance, SDG, hotel and tourism industry sector

1. Introduction

The Hotel and Tourism Industry (hereafter HTI) includes any organization that "serves specific needs and wants of tourists"; it is segmented into tourist attractions, accommodations, carriers, services, along with its sales and marketing area (Leiper, 1979). Tourism products comprise the natural, social, and cultural capital of a destination (Moneva et al., 2020). In general, the industry also considers other sectors, such as cruise lines, airlines, railways, and tour operators (Bodhanwala & Bodhanwala, 2022).

The HTI contributes 10% of the global Gross Domestic Product (United Nations Environment Programme, 2021) and drives economic growth by increasing tax revenues, creating employment opportunities, and attracting private capital investments (Scheyvens & Hughes, 2019). The Covid-19 pandemic drastically affected the HTI. As a reference, in 2019, the HTI accounted for 333 million jobs globally, decreasing to 289 million jobs in 2021. Regarding the global GDP contribution, during the pandemic, HTI´s GDP declined by 50.4%, and by 2021, it had recovered 21.7% of its lost revenues, outpacing the global GDP growth rate of 5.8% (World Travel and Tourism Council [WTTC], 2022).

The HTI is also responsible for depleting natural resources as well as for water and waste contamination (de Grosbois, 2012). In fact, by 2050, the HTI is expected to increase greenhouse gas emissions by 131% and water consumption by 152% (United Nations Environment Programme, 2021). Regarding the United Nations (UN) Sustainable Development Goals (SDG), the Voluntary National Reviews disclosed by 64 countries concluded that tourism contributes to all SDG´s objectives, even though SDG 8 "Decent Work and Economic

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Growth" and SDG 12 "Responsible Consumption and Production" are the ones with a more direct link with the tourism industry (World Tourism Organization & United Nations Development Programme, 2018).

To mitigate negative externalities, the HTI must implement sustainable practices directed at external stakeholders (i.e., customers, suppliers, state regulators, and communities) and internal ones, such as investors, employees, and management (Font & Lynes, 2018). More importantly, HTI firms are pressured to invest in sustainable practices, improving their Corporate Social Responsibility (CSR) (Camilleri, 2016; Tang et al., 2017). CSR tourism strategies promote customer loyalty as firms engage in environmental actions (Tuan et al., 2019). The use of green technology enhances environmental sustainability, creating positive client perception and experience (Chung et al., 2019). CSR engagement in HTI enhances the quality of life for employees, their families, and society while promoting financial growth (Madanaguli et al., 2022). This engagement also helps HTI firms establish strong relationships with stakeholders, fostering client loyalty (Latif et al., 2020). CSR initiatives are generally disclosed in CSR reports, which help investors value a firm´s performance (Dhaliwal et al., 2014) by considering the details of sustainable investment practices implemented. This type of reporting legitimizes HTI activities (Palacios-Florencio et al., 2018). The purpose of this paper is to examine the relationship between the cost of equity and three sustainable variables (i.e., environmental performance, greenhouse gas emissions, and issuance of a CSR report) using a global sample of HTI-listed firms from both developed and developing economies.

A new research line focuses on how the company's sustainability profile decreases its cost of equity (also called cost of capital) mostly within developed countries and specific sectors (e.g. in the food and beverage industry, as in Raimo et al. 2020), little attention has been paid to the HTI area- just a research note in the field with data from 2002 to 2010 mixing food and beverages with hotel and entertainment companies (Feng et al., 2014), or a study using Bloomberg ESG score as independent variable (Salvi et al., 2024). Hence, our paper fills the gap between the voluntary disclosure of sustainable practices adopted by HTI-listed firms and ex-ante market performance scores (i.e. cost of equity). This research helps mitigate asymmetric information, promoting transparency amongst stakeholders in the industry.

The article is structured as follows: section 2 presents the literature review and theoretical framework. Section 3 introduces the hypotheses development. Section 4 describes the methodology. Section 5 presents the results, and Section 6 provides a conclusion to the research, summarizing the key findings.

2. Literature review and theoretical framework

The Agency theory explores the conflict between a firm´s shareholders and management. Managers often possess private information, which may lead to misalignment of interests with shareholders (Jensen & Meckling, 1976). Therefore, HTI firms disclose financial (Feng et al., 2017) and non-financial information to avoid the stewardship problem (Healy & Palepu, 2001).

Under this theoretical framework, the cost of capital serves as a sustainability indicator that captures a firm´s risk profile (Global Reporting Initiative [GRI] & Sustainability Accounting Standards Board [SASB], 2021). On the other hand, the CSR concept can have different interpretations when measured with different proxies. The Bruntland Commission defines sustainability as fulfilling the current needs of society without compromising the needs of future generations (Bruntland, 1987). This concept creates relations with stakeholders (van der Woerd & van den Brink, 2004). Therefore, CSR strategies primarily focus on stakeholders, incorporate good labor conditions, and engage with local communities, thereby creating positive financial and non-financial outcomes (Madanaguli et al., 2022). CSR strategies in the HTI promote customer loyalty by engaging the firm in environmental actions (Tuan et al., 2019). The social aspect of CSR considers business activities that have a positive impact on society (Font & Lynes, 2018). Environmental, Social, and Governance (ESG) scores reflect CSR practices implemented by firms. In this sense, the ESG score represents the firm´s integration

of sustainable behaviors in its activities (Birindelli et al., 2018). Hopefully, shareholders of sustainable listed companies may expect higher returns and also increment the firm´s cash flows (Gillan et al., 2021).

The relationship between the cost of equity and CSR performance scores has been widely studied considering developed economies (Ahmed et al., 2019), developing economies (Dahiya & Singh, 2019) and multi-country samples (Gupta et al., 2018). According to prior research, greater environmental CSR disclosure decreases the cost of equity, therefore differentiating competitive and non-competitive firms (Ben Hmiden et al., 2022). Considering a sample of listed firms (in the beverages, food, hotel and entertainment industries), results indicate that environmental and social scores decrease the cost of equity in North American and European firms, whilst no significant relation can be found for the Asian firms in the sample (Feng et al., 2014). These results align with those of Feng et al. (2015), as Asian firms view ESG as a marketing expense. Lastly, considering a global sample of HTI-listed firms, Salvi et al. (2024) found that higher ESG scores (achieved through eco-friendly technologies that protect or conserve natural resources) decrease firms' cost of equity.

Lastly, the adoption of IFRS significantly decreases the cost of equity for European Union-listed firms compared to non-EU-listed firms (Feng et al., 2017). In July 2023, the European Union adopted the European Sustainability Reporting Standards (ESRS), which became mandatory for certain companies in 2024 (EU, 2022) and are expected to have a similar impact on the cost of equity.

The Signaling theory posits that firms decide to disclose information to counterparts when information asymmetries occur (Connelly et al., 2011). Taking into account the cost of debt as a financial proxy, results show that carbon-intensive HTI firms increment the cost of debt by charging higher premiums (Wang et al., 2021). Nevertheless, empirical evidence shows a positive relationship between carbon emissions and the cost of equity. In an emerging market context, incremental carbon emission intensity costs equity in Indonesian-listed firms (Marselita et al., 2021). Lastly, considering a multi-country sample, results indicate that a firm´s carbon emission intensity increases the cost of equity, and the increment is significant in common-law countries (Bui et al., 2020).

The Stakeholder theory focuses on the relationship between the firm and all members linked to the business sphere (Abdi et al., 2022). Firms' voluntary sustainable disclosures can hence be defined as a response to social and political pressures from stakeholders (Hahn et al., 2015). Previous studies have analyzed the relationship between CSR and corporate financial performance - e.g., employee relations and capital intensity positively moderate environmental and diversity scores, thereby incrementing long-term profitability in HTI firms (Theodoulidis et al., 2017). While analyzing the link between CSR disclosures and equity holdings from an emerging market context, CSR disclosures appear to decrease the systematic risk of casinos and restaurants; however, they do not show a significant link between CSR disclosures and a firm´s unsystematic risks (Kim et al., 2017).

With a broader sample of hotel and tourism industry firms, CSR is found to have a positive effect on cost reduction and short-term profit increments (Moneva et al., 2020). On the other hand, the relationship between ESG scores and market-value ratios indicates that social scores show a decrease in a firm´s value in North American, European, and Asian HTI firms. In contrast, environmental scores have a non-significant relationship with the market value of US firms (Ionescu et al., 2019). Additionally, a study with a global sample of HTI-listed firms found that board diversity, including independent and non-executive board members, positively impacts ESG scores. However, the findings also indicate that ESG proxies do not enhance accounting performance ratios (captured by Return over Assets). At the same time, there are no significant results for market-performance ratios, such as the Tobin Q (Uyar et al., 2020b). The analysis of ESG and Tobin Q also reveals a negative relationship between transportation and hotel firms, which may tempt HTI´s management to refrain from providing ESG disclosures (Bodhanwala & Bodhanwala, 2022). Regarding the

COVID-19 pandemic, evidence shows that CSR practices, such as providing accommodations to healthcare workers, implemented by hotel firms, decreased the market value of HTI firms (Shin et al., 2021). On the contrary, HTI-CSR practices resulted in an increase in employee satisfaction considering psychological and capital variables (Mao et al., 2021).

3. Hypotheses development

CSR has become relevant since the HTI relies on natural resources, interacts with local communities, and integrates clients and employees to help achieve its long-term CSR strategies (Hadj, 2020). Tourism, as an industry, fosters economic growth but also creates negative externalities to the environment and society (Chilufya et al., 2019). More importantly, the HTI is adopting sustainable practices, such as green and eco-tourism, as well as alternative tourism options (Nyahunzvi, 2013). Additionally, "green" human resources policies have a positive impact on both employee satisfaction and environmental performance (Kim et al., 2019).

Different scholars have widely documented the inverse relation between the cost of equity and environmental scores. Therefore, we posit our first hypothesis:

H1: Environmental performance score is negatively associated with the cost of equity of HTI-listed firms.

Carbon emissions from tourism are high, having a substantial effect on climate change (Tao & Huang, 2014). The HTI contributes 8% of total carbon emissions, primarily from the transportation, restaurant, and retail industries located in developed economies (Lenzen et al., 2018). Current findings suggest that increased international tourism arrivals are associated with higher carbon emissions and lower environmental quality in Asian countries (Zhang & Liu, 2019). Additionally, a positive relationship exists between international tourist visits and transportation demand, thereby contributing to an increase in carbon emissions (Koçak et al., 2020). Moreover, tourism, GDP growth and energy consumption have a positive effect on environmental pollution (Raifu & Ademola, 2025). Nonetheless, implementing green technology can mitigate carbon emissions from international tourism and promote economic growth in countries with higher carbon emissions (Razzaq et al., 2023). Lastly, the study by Rehman et al. (2023) demonstrates that firms with greater capital needs are more likely to voluntarily disclose carbon information due to stakeholder pressure, thereby benefiting from lower equity expenses in opaque financial markets.

Thus, we propose the second hypothesis:

H2: Carbon emissions are positively associated with the cost of equity of HTI-listed firms.

The CSR report discloses the firm´s activities, commitments, and policies through numerical and non-numerical information, aiming to contribute to sustainable development and, therefore, meet stakeholders' demands (García-Sánchez, 2021). After analyzing HTI areas, prior research has found that higher CSR performers are more likely to disclose non-financial reports and issue additional reports compared to lower CSR performers (Uyar et al., 2020a). In addition, Koseoglu et al. (2021) conclude that higher CSR firm performers are likely to disclose stand-alone reports, implement GRI guidelines, and externally assure their reports compared to non-CSR firm performers. A different perspective on analysis reveals that firms operating in high-accountability environments and those operating in lower-ethical business environments are more likely to disclose non-financial reports (Hamrouni et al., 2023). Indeed, CSR reporting hurts the cost of equity of listed firms (Shad et al., 2020).

Therefore, we present the third and final hypothesis:

H3: The voluntary disclosure of corporate social responsibility reports decreases the cost of equity of HTI-listed firms.

4. Methodology

Sustainable and financial control variables were obtained from Thomson Reuters Refinitiv, filtering global companies with a market capitalization greater than $ 17 billion in the hotel, restaurant, leisure, entertainment, and passenger airlines sectors, according to GICS' classification. Forecasted earnings per share and price data were retrieved from Thomson Reuters I/B/E/S (Institutional Broker Estimates System) monitor to calculate the cost of equity. Consequently, we obtained an initial sample of 1.641 listed firms. After excluding firms with missing ESG and financial data, we received an unbalanced panel data of 81 listed firms, 925 firm-year observations from developed and developing economies, for the period 2011 to 2022 operating in the airline, casino & gambling, cruise & ships, entertainment, hotel, and restaurants industries as Uyar et al. (2020b) and similarly to Salvi et al. (2024).

Table 1 presents the number of observations by country of origin:

Table 1
Number of observations per country

	Observations	Percentages
Australia	24	2.59%
Canada	10	1.08%
China	108	11.68%
France	24	2.59%
Germany	17	1.84%
Greece	12	1.30%
Hong Kong	36	3.89%
Ireland; Republic of	24	2.59%
Isle of Man	7	0.76%
Japan	60	6.49%
Macau	24	2.59%
Singapore	24	2.59%
Spain	23	2.49%
Sweden	10	1.08%
Thailand	12	1.30%
Turkey	12	1.30%
United Kingdom	60	6.49%
United States of America	438	47.35%
Total	925	100%

Table 2 shows the number of observations by each specific industry within the general HTI in our sample:

Table 2
Number of observations per industry

	Observations	Percentages
Airline	195	21.08%
Casino & Gambling	89	9.62%
Cruise & Ships	36	3.89%
Entertainment	167	18.05%
Hotel	271	29.30%
Restaurant	167	18.05%
Total	925	100%

The model used is as follows:

$$Y_{it} = \alpha_{it} + \beta_1 Env\ Score_{it} + \beta_2\ Co2\ Emissions_{it} + \beta_3\ CSR\ Reporting_{it} + \beta_4\ Size_{it} + \beta_5\ Beta_{it} + \beta_6\ ROA_{it} + \beta_7 Rev\ Growth_{it} + \beta_8\ BTM_{it} + \Sigma\ Industry_{it} + \Sigma\ Year_{it} + \varepsilon_{it}$$

According to Hausman's (1978) test result, we control for endogeneity using Random Effects (RE) estimators. The cost of equity (CoE) is the dependent variable measured by the ex-ante price-earnings growth (PEG) model, as proposed by Easton (2004).

$$\mathrm{CoE_{it}} = \sqrt{\frac{\mathrm{EPS_{it(2)}} - \mathrm{EPS_{it(1)}}}{\mathrm{P_{it}}}}$$

Regarding sustainable variables, as explained in the hypotheses section, Environmental scores are expected to have a negative sign, similar to Feng et al. (2014) and Ben Hmiden et al. (2022). Carbon emissions are expected to have a positive sign, as in Kim et al. (2015). Finally, regarding CSR Reporting, we expect a negative sign.

Regarding the control variables, for Size, we expect a negative coefficient, as larger firms tend to reduce information asymmetries by disclosing more financial information. For Beta, we expect a positive coefficient consistent with prior research.

Table 3 explains the dependent, independent and control variables considered in our model:

Table 3
Variable description

Variable - Label	Description
Cost of Equity - CoE	Investor´s expected return - Continuous Variable
Beta	Firm´s Systematic Risk - Continuous Variable
Book to Market	Book Value scaled by Market Value of Firm -Continuous Variable
ROA	Net Earnings scaled by Total Assets - Continuous Variable
Size	Natural Logarithm of Market Capitalization - Continuous Variable
Revenue Growth	Change in revenue between previous year and current scaled by current sales – Continuous variable
Co2 Emissions	Natural Logarithm of Carbon Emissions measured in metric tons (Scope 1 & Scope 2) - Continuous variable
Environmental Score	Sustainable score, taking into account firm´s technology implemented to reduce environmental expenses and develop eco-friendly products-services - range value between 0% to 100% - Continuous variable
CSR Reporting	Firms´ disclosure of Non-financial reports - Dummy Variable (1 if CSR Report is disclosed, 0 otherwise)
Industry	Airline, Casino & Gambling, Cruise & Ships, Entertainment, Hotel and Restaurant - Dummy Variable (1 if each specific industry of those within HTI is considered, 0 otherwise)
Year	Time period between 2011 and 2022 - Dummy variable (1 if that specific year is considered - 0 otherwise)

5. Results

Table 4 shows the descriptive statistics of the variables used in our study. The means for Cost of Equity, Environmental Score, Carbon Emissions, and CSR reporting are, respectively, 4.1%, 38.7%, 139.5%, and 52.4%.

Table 4
Descriptive statistics

Variable	Mean	Std Dev	Max	Min
Cost of Equity	0.0410288	0.07322	1.475056	0
Beta	0.7459744	0.7081158	3.219687	-0.6868167
Book to Market	0.0796144	0.1642556	0.9572943	-1.164842
ROA	0.0495425	0.0926203	0.5273219	-0.3671021
Size	9.152619	1.182035	12.70084	4.434332
Revenue Growth	0.0782314	0.159541	1.987811	-0.1722057
Environmental Score	0.386982	0.325584	0.9841312	0
Co2 Emissions	13.95008	2.376726	17.5603	7.212295
CSR Reporting	0.5243243	0.4996781	1	0

Table 5 presents the Pearson correlation matrix, which reveals a significant negative relationship between the Cost of Equity, Environmental Score, and CSR Reporting. There is no evidence of multicollinearity among the independent variables, as the VIF (Variance Inflation Factor) result is 2.74, which is well below the benchmark of 10.

Table 5
Pearson correlation coefficients

	1	2	3	4	5	6	7	8	9
Cost of Equity	1								
Env Score	-0.0557*	1							
Co2 Emissions	-0.031	0.1206*	1						
CSR Reporting	-0.0781*	0.7762*	0.0822*	1					
Size	-0.2288*	0.4933*	0.0774*	0.3219*	1				
BETA	0.0614*	0.2806*	-0.0081	0.2255*	0.0548	1			
ROA	-0.1331*	-0.0854*	-0.0966*	-0.1579*	0.1545*	-0.2011*	1		
Revenue Growth	0.0969*	0.1438*	-0.1047*	0.1136*	0.0546	0.3679*	-0.2678*	1	
Book to Market	-0.0203	0.103*	0.0843*	0.0609*	0.1656*	0.031	-0.1491*	0.0331	1

Coefficients with asterisk are statistically significant at the ***1% **5% *10% levels

Our results for the RE model are shown in Table 6. The first three columns show the results of each independent hypothesis, while the last (fourth) column shows the results for the complete model.

Firstly, in Panel A, the Environmental Score coefficient (β_1 = -0.0135) is statistically significant at the 5% level. Consequently, we accept the first hypothesis. Secondly, in Panel B, the Carbon emission coefficient (β_2 = 0.0071) is positively related to the CoE at a 1% level. Hence, there is no evidence to reject the second hypothesis, and we accept it as well. Thirdly, in Panel C, CSR Reporting (β_3 = -0.010) is inversely related to CoE, with a significance level of 5%; thus, the third and final hypothesis is also accepted.

Finally, in Panel D, we obtain confirmation of the contrast of hypotheses done in the previous panels for each hypothesis separately, with the results obtained from the complete model considering all three variables under analysis. Hence, the Environmental Score (β_1 = -0.0278) and CSR Reporting (β_3 = -0.0134) are inversely related to CoE. On the other hand, Carbon Emissions (β_2=0.0092) are positively related to the CoE. Regarding control variables, Size has a negative coefficient in all Panels. Beta has a positive coefficient in panels B and D, whilst Return over Assets is inversely related in panels A and C. Lastly, revenue growth is positively associated with CoE in all panels.

Table 6
Panel data analysis implementing random effects

	Panel A	Panel B	Panel C	Panel D
	Coefficients	Coefficients	Coefficients	Coefficients
Env Score	-0.0135401** (-2.00)			-0.0278466** (-2.21)
Co2 Emissions		0.0071029*** 4.32		0.0092565*** 5.41
CSR Reporting			-0.0108475** (-2.72)	-0.0134009** (-2.15)
SIZE	-0.005369** (-2.81)	-0.0060606** (-2.42)	-0.0055315** (-3.09)	-0.0050908** (-2.06)
BETA	-0.0001484 (-0.03)	0.0086742* 1.70	-0.0003864 (-0.09)	0.0090701* 1.8
ROA	-0.0790686*** (-3.48)	-0.0148206 (-0.45)	-0.0821866*** (-3.62)	-0.0273004 (-0.84)
Rev Growth	0.0371672** 2.99	0.035197** 3.07	0.0368828** 2.97	0.0335067** 2.97
BTM	-0.0028652 (-0.25)	-0.0212977 (-1.64)	-0.0034982 (-0.30)	-0.0301068** (-2.32)
Constant	0.0839209*** (-4.39)	-0.0131867 (-0.47)	0.085463*** 4.57	-0.0185355 (-0.67)
Year	Yes	Yes	Yes	Yes
Sample Size	840	494	840	494
Hausman				
$\chi 2$	3.55	9.46	3.72	7.09
Prob > $\chi 2$	0.9814	0.5796	0.9773	0.8977

Statisically significant at *10% **5% ***1%

6. Conclusions

This paper examines the relationship between environmental performance scores, carbon emissions, and the issuance of a corporate social responsibility report on the cost of equity of HTI firms. The results obtained confirmed our hypotheses and provided a valuable contribution, as evidence suggests that this sector can benefit financially if companies commit to sustainability engagement. Additionally, better environmental scores help HTI firms access financial capital sources, which can help avoid default risks and decrease stock return volatility (García et al., 2024).

The HTI sector is key in the fight against climate change, so shareholders will demand lower returns if the companies have lower emissions. Our findings reveal that higher carbon emissions have a positive influence on HTI´s cost of equity, raising awareness so that HTI firms are more willing to measure and reduce their carbon footprint.

The Tourism industry has a significant role in promoting peace and justice, and it creates sustainable business growth opportunities (Khizar et al., 2023). Likewise, sustainable tourism is closely related to three variables encompassing environmental, social, and governance issues (Khan et al., 2022). In line with the SDG goals, the tourism industry plays a significant role in achieving decent work and economic growth (SDG 8), responsible production and consumption (SDG 12), and climate action (SDG 13). It can also help achieve other goals, such as poverty reduction (SDG 1) or food security related to SDG 2 (Degarege & Lovelock, 2021), notwithstanding that countries should preserve their natural resources for future generations by achieving all the SDGs. Regarding SDG 13, HTI firms rely on natural resources such as carbon, energy, and agricultural products (Legendre et al., 2024). Therefore, climate change represents a global systematic risk that affects the overall economy and, more importantly, the tourism industry (HTI). Consequently, developed and emerging economies must implement efficient and effective environmental management strategies to create a sustainable tourism industry (Grilli et al., 2021).

Our study results should help the HTI accomplish the UN 2030 SDG Agenda. More specifically, our research may encourage the accomplishment of SDG 12, "responsible production and consumption", by promoting CSR reporting so that HTI firms disclose how they secure the food chain process (Seraphin & Gowreesunkar, 2021), mitigating food waste in this industry by implementing cross-sectional partnerships with stakeholders (de Visser-Amundson, 2022) and ethical production and consumption of resources. SDG 12 and SDG 8 could also improve in this industry if our findings encourage firms to become more responsible in their production and consumption decisions, as they should be interested in reducing their costs of capital and be more eager to help eradicate poverty by creating job opportunities (Seraphin & Gowreesunkar, 2021).

Lastly, our study has limitations as we had to eliminate firms with missing information obtained from Thomson Reuters. Nevertheless, this study opens very new avenues of research, which will be worth further exploring once the HTI starts applying the latest sustainability standards (European Union, 2022; IFRS, 2023).

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