# GREEN AND FINANCIAL PERFORMANCE INDEX: A COMPOSITE INDEX TO COMPARE FIRM PERFORMANCE IN THE TOURISM SECTOR

## YEŞİL VE FİNANSAL PERFORMANS ENDEKSİ: TURİZM SEKTÖRÜNDEKİ ŞİRKET PERFORMANSINI KARŞILAŞTIRMAK İÇİN BİLEŞİK BİR ENDEKS

**Filiz MUTLU**
Çanakkale Onsekiz Mart University
Gökçeada Vocational School
filiz.mutlu@comu.edu.tr
ORCID: 0000-0002-9446-4265

**Tanju GÜDÜK**
Çanakkale Onsekiz Mart University
Çanakkale Social Sciences Vocational School
tanjuguduk@comu.edu.tr
ORCID: 0000-0001-5349-7282

## ABSTRACT

Environmental concerns have become increasingly crucial in the financial system. This study aims to develop a composite index, the Green and Financial Performance Index (GFPI), to measure the combined impact of environmental and financial indicators on financial management and to evaluate the overall performance of firms. The efficacy of the developed index was tested in the tourism sector utilizing the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) method. The publicly available financial and sustainability reports of the Mandarin Oriental Hotel Group, covering the period from 2014 to 2023, were examined to obtain the GFPI score for each year. The results revealed that 2015, 2016, and 2017 achieved the highest scores, while the years 2020, 2021, and 2023 recorded the lowest. Consisting of "green performance" and "financial performance" dimensions, the GFPI provides investors, financial managers, and researchers with a comprehensive performance measurement tool to guide companies' financial decision-making processes.

## ÖZ

Finansal sistemde çevresel kaygılar giderek daha önemli hale gelmektedir. Bu çalışma, çevresel ve finansal göstergelerin finansal yönetim üzerindeki bütünsel etkisini ölçmek ve firmaların genel performansını değerlendirmek için Yeşil ve Finansal Performans Endeksi (Green and Financial Performance Index-GFPI) adlı bir bileşik endeks geliştirmeyi amaçlamaktadır. Geliştirilen endeksin etkinliği, TOPSIS yöntemi kullanılarak turizm sektörü örneğinde test edilmiştir. Mandarin Oriental Hotel Group'un 2014-2023 yılları arasındaki kamuya açık finansal ve sürdürülebilirlik raporları, her yıl için GFPI puanını elde etmek amacıyla incelenmiştir. Analiz sonucunda 2015, 2016 ve 2017 yıllarının en yüksek puanları aldığı, 2020, 2021 ve 2023 yıllarının ise en düşük sonuçları aldığı görülmektedir. "Yeşil performans" ve "finansal performans" boyutlarından oluşan GFPI, yatırımcılara, finans yöneticilerine ve araştırmacılara şirketlerin finansal karar alma süreçlerine rehberlik edecek kapsamlı bir performans ölçüm aracı sunmaktadır.

# Introduction

In recent years, with the increasing investor expectations, awareness, attitudes, and priorities of consumers, it has become evident that evaluating financial performance alone is insufficient in the decision-making processes of companies. Accordingly, sustainability and green performance issues have become the focus of attention (Elkington, 1997; WEF, 2025).

The subject of financial management in the tourism sector has attracted widespread attention (Sheehan & Ritchie, 1997; Eagles, 2002; Pandey & Kumar, 2022). When studies evaluating performance in financial management within the tourism sector are examined, it is evident that most focus solely on financial indicators. With the development of sustainability issues and increasing awareness of this topic, environmental factors have come to the fore in the financial management of the tourism sector, and emphasis has been placed on studies addressing this subject (Diaz & Kien, 2019). The challenges faced by businesses, as well as future trends that argue for commitments to environmental practices, have been addressed through environmental awareness, performance, and initiatives (Tzschentke et al., 2008; Graci & Dodds, 2008; Nicholls & Kang, 2012; Wan et al., 2017). In addition, the adoption status of environmental practices (Tzschentke et al., 2004) and their relationship with financial returns were evaluated (Singal, 2014; Jackson et al., 2015). Franzoni (2015) and Weerathunga et al. (2020) measured sustainability performance in the tourism sector.

There are composite index studies consisting of financial and environmental indicators at the global level, and the performances of countries in this area can be measured and compared (Shah et al., 2019; Iqbal et al., 2021; Wang et al., 2021; Bhatnagar et al., 2024). Indices have been developed in the tourism sector to evaluate tourism policy development, sustainable tourism valuation, and sustainable tourism development performance (Castellani & Sala, 2010; Ghoochani et al., 2020; Cesarini & Terraglia, 2023).

Despite the progress made in this field, there is a lack of research that allows researchers and financial managers to compare financial management through a more effective and holistic evaluation of decision-making processes. To address this gap in the literature, the study aims to develop a composite index that combines the main dimensions of "green performance" and "financial performance", enabling the evaluation of both environmental and financial elements simultaneously and obtaining a single performance score (See Figure 1). In this regard, the effectiveness of the developed "Green and Financial Performance Index (GFPI)" was tested on the Mandarin Oriental Hotel Group between 2014 and 2023 using the TOPSIS method.
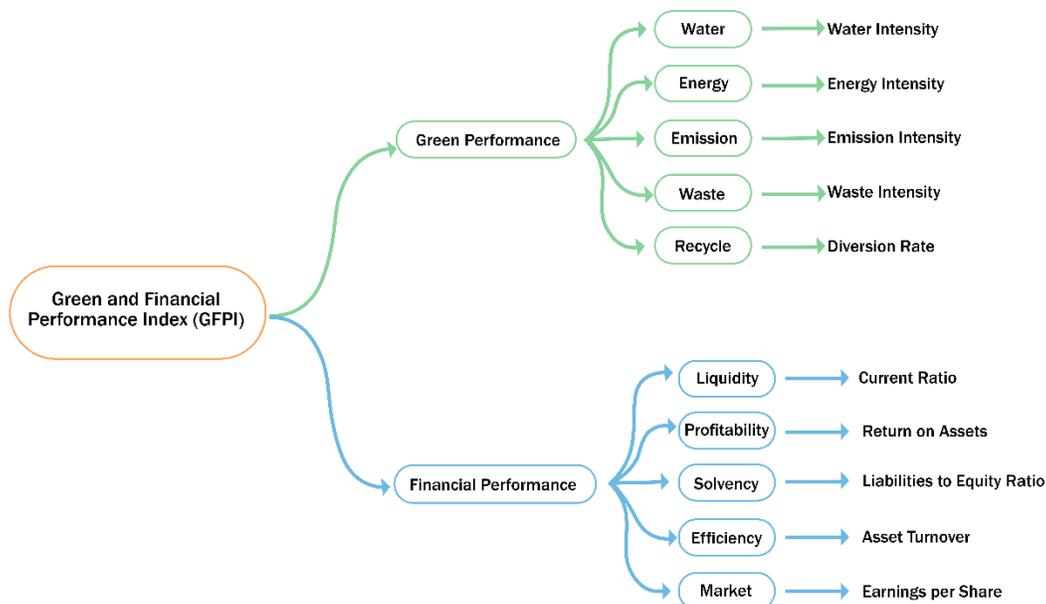


**Figure 1.** Green and Financial Performance Index. Source: Authors' Elaboration

The contribution of this paper to the existing literature is that it develops a methodology for building a composite index, enabling researchers and financial managers to evaluate the holistic green and financial performance of the tourism sector.

Following the introduction, the literature review is presented. In the third section, the study's objectives, the data set and its scope, the analysis process, and the TOPSIS method are presented. The following sections present the research findings and conclusions.

## Literature Review

Financial performance evaluation is widely conducted in the tourism sector (Sheehan & Ritchie, 1997; Bankole, 2002; Shamaileh & Khanfar, 2014; Hiadlovský et al., 2016; Onuferová et al., 2020). Özçelik and Kandemir (2015), Kahveci and Turna (2016), Yılmaz and Aslan (2017), Erdoğan and Yamaltdinova (2018), and Karakaş and Öztel (2020) evaluated the financial performance of tourism enterprises listed on Borsa Istanbul (BIST) using the TOPSIS method. Ergül (2014) comparatively tested the financial performances of these companies over the period 2005-2012 using the ELECTRE method in conjunction with the TOPSIS method. Aytekin (2019) employed the MAUT, PROMETHEE, and TOPSIS methods to measure financial efficiency between 2014 and 2018. Temür (2022) determined the weights of financial ratios for the years 2016-2020 with the Entropy method and applied TOPSIS, ARAS, and COPRAS methods in the analysis. Türegün (2022) conducted a financial performance evaluation of tourism enterprises using the TOPSIS and VIKOR methods.

Tzschentke et al. (2004) evaluated the reasons for the adoption of environmental practices by accommodation establishments. It was stated that these reasons are not only economic but also ethical factors that can be effective in participation in environmental activities. Ham and Han (2013) investigated the role of environmental practices of hotels in customer loyalty, including intentions to recommend, visit, and accept price premiums. Leonidou et al. (2013) in their study conducted in the Greek hotel sector, suggested that having sufficient financial and physical resources is effective in creating competitive advantage and adopting green marketing strategies. Cvelbar and Dwyer (2013) examined the role of sustainability elements in strategic planning. Similarly, Franzoni (2015), Weerathunga et al. (2020) conducted sustainability performance evaluation in the tourism sector.

Prud'homme and Raymond (2013) investigated the impact of sustainable development practices on the tourism sector. As a result of the survey studies, it was determined that adopting these practices had a positive impact on customer satisfaction. Singal (2014) examined the relationship between investments in sustainability initiatives and the financial performance of companies, finding that accommodation companies invested more in environmental practices compared to other sectors. In the relevant study, it was emphasized that high financial performance in this sector leads to sustainability investments, which are then financially supported by customers.

Jackson et al. (2015) investigated the connection between the environmental and financial performances of tourism companies using a multidimensional scaling approach. It was concluded that companies with high financial performance were also highly ranked in terms of environmental performance. The reason for this was interpreted as the fact that financially successful companies can allocate more resources to environmental initiatives, and it was emphasized that the efficiency demonstrated in financial terms could have a positive impact on environmental performance.

Mazhenova et al. (2016) assessed tourists' attitudes and awareness of sustainability practices and environmental responsibility in tourism organizations and hotels, concluding that tourists' environmental awareness influenced their purchasing behavior. It was observed that tourists with high environmental awareness preferred hotels and tourism organizations that adopted green practices. Tan et al. (2017) investigated the impact of environmental performance on firm performance in the tourism and travel industry for the period 2003-2014, revealing that environmental performance had a positive effect on financial performance. Bodhanwala and Bodhanwala (2022) examined the relationship between ESG performance representing sustainability and stock market valuation and profitability in the tourism and travel sector. Becerra-Vicario et al. (2022) found that hotels that improved their environmental performance achieved better financial performance results.

Shah et al. (2019) constructed the composite "Energy Security and Environmental Sustainability Index" by combining energy and environmental indicators. The effectiveness of the relevant index was tested on South Asian countries between 2006 and 2017. Wang et al. (2021) developed an index to measure the level of green finance development. The Entropy method was used to weight the indicators, and the effectiveness of the index was tested using the Analytic Hierarchy Process method. Iqbal et al. (2021) developed the "Green Finance Index" by combining energy, environment, and financial indicators and examined the role of countries in reducing environmental pollution. D'Orazio and Thole (2022) devised the "Climate-related Financial Policy Index" to raise awareness about the negative impact of environmental degradation caused by climate change on financial systems and to draw attention to green financial policymaking. Bhatnagar et al. (2024) developed the "Green Finance and Investment Index", which is effective in evaluating green transformation initiatives in the financial system. This index comprises four primary dimensions: transparency, durability, effectiveness, and efficiency.

Regarding composite index studies in the tourism sector, Castellani and Sala (2010) proposed a sustainable performance index based on the dimensions of "analysis, consultation, and planning" for developing tourism policy. Ghoochani et al. (2020) suggested a composite index to measure sustainable tourism development performance. This index, consisting of 69 indicators, was developed under three main dimensions: environmental, socio-cultural, and economic. Cesarini and Terraglia (2023) developed a composite index based on the dimensions of "environmental impact, digitalization, and socioeconomic vulnerability" for sustainable tourism evaluation.

## Methodology

### The Purpose of the Study

This study aims to develop a composite index that measures the combined effect of environmental and financial variables on financial management in the tourism sector. In this regard, five sub-dimensions were determined under the "green performance" dimension: water, energy, emission, waste, and recycling. Under the "Financial Performance" dimension, the sub-dimensions of "Liquidity, profitability, solvency, efficiency, and market" were created. The indicators representing each sub-dimension were selected using equal weighting. Since there are a total of 10 indicators, each one is weighted at 1/10. The design of the developed Green and Financial Performance Index (GFPI) is given in Figure 2.

| Green and Financial Performance Index | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|

| Dimensions | Green Performance | | | | | Financial Performance | | | | |
|---|---|---|---|---|---|---|---|---|---|---|

| Index Components | Sub-Dimensions | Water | Energy | Emission | Waste | Recycle | Liquidity | Profitability | Solvency | Efficiency | Market |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Indicators | Water Intensity | Energy Intensity | Emission Intensity | Waste Intensity | Diversion Rate | Current Ratio | Return on Assets | Liabilities to Equity Ratio | Asset Turnover Ratio | Earnings per Share |

| Weights | 1/10 | 1/10 | 1/10 | 1/10 | 1/10 | 1/10 | 1/10 | 1/10 | 1/10 | 1/10 |
|---|---|---|---|---|---|---|---|---|---|---|---|

**Figure 2.** Design of Green and Financial Performance Index. Source: Authors' Elaboration

### Data and Sample

In this study, which aims to develop the GFPI, the financial reports and sustainability reports of the Mandarin Oriental Hotel Group for the period 2014-2023 were evaluated (Mandarin Oriental Hotel Group, 2025a).

The Mandarin Oriental Hotel Group, which aims to manage its social commitments and environmental impacts responsibly and contribute to the local communities in which it operates, was selected for this study because it

has adopted a governance mechanism that incorporates sustainability practices into its policies and procedures (Mandarin Oriental Hotel Group, 2025b). In this regard, application examples in the literature were evaluated within the scope of financial and environmental dimensions. Subsequently, the activity and sustainability reports of the Mandarin Oriental Hotel Group were examined, and the common indicators considered to be complete, continuous, and representative of the model were identified, as shown in Table 1.

**Table 1:** Indicators Selected for GFPI

| Dimension | Sub-Dimension | Indicator | Definition | Literature Source |
|---|---|---|---|---|
| **Green Performance** | **Water** | Water Intensity | Total water yearly consumption per sq m | Skouloudis et al. (2014) |
| | **Energy** | Energy Intensity | Total energy yearly consumption per sq m | Becken et al. (2001) |
| | **Emission** | Emission Intensity | Total emission yearly per sq m | Zha et al. (2019) |
| | **Waste** | Waste Intensity | Total waste yearly per sq m | Theodoulidis et al. (2017) |
| | **Recycle** | Diversion Rate | The percentage of recycled waste | Tamajón & Font (2013) |
| **Financial Performance** | **Liquidity** | Current Ratio | The ratio of current assets to current liabilities | Kung & Wen (2007) |
| | **Profitability** | Return on Assets | The ratio of net income to total assets | Suvvari & Goyari (2019), Aras & Mutlu Yıldırım (2018) |
| | **Solvency** | Liabilities to Equity Ratio | The ratio of total liabilities to total equity | Subačienė & Villis (2010), Tan et al. (2017) |
| | **Efficiency** | Asset Turnover | The ratio of revenue to total assets | Chen (2010) |
| | **Market** | Earnings per Share | The ratio used to determine the share price of a company | Siew et al. (2013). Güdük (2018) |

## Analysis Process

This section presents the conceptual framework used to construct the index. The analysis process consists of five phases, as summarized in Figure 3 and described in the rest of this section. First, studies in the literature, sustainability reports, and financial reports of the Mandarin Oriental Hotel Group were examined, and indicators were identified under the green and financial performance dimensions. Each indicator was weighted equally, and the GFPI was developed. Next, the values of the indicators were obtained using the content analysis method. In the last step, the green and financial performance of the Mandarin Oriental Hotel Group was measured using the TOPSIS method.
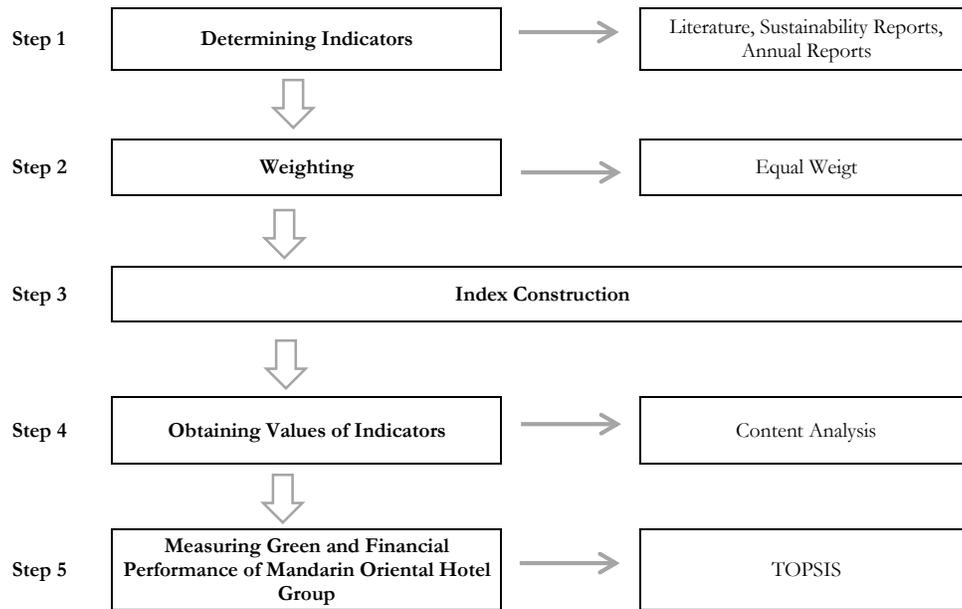
**Figure 3.** The Conceptual Framework for Developing GFPI. Source: Authors' Elaboration

## TOPSIS

In this study, which developed the Green and Financial Performance Index, the effectiveness of the proposed index was analyzed using the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) method. The TOPSIS method was chosen for this study because it enables the selection of the best alternative by identifying the one that is farthest from the negative ideal solution and closest to the ideal solution, and its calculation steps are clear and straightforward (Hwang & Yoon, 1981; Bai et al., 2014; Weerathunga et al., 2020; Chang et al., 2021; Ersoy, 2022). It was assumed that the indicators used in this method application were equally weighted. The reason for using this weighting method is that it assigns equal importance to the criteria in decision problems, offers an objective approach independent of the opinions of decision-makers, and is easy to calculate (Jahan et al., 2012; Triantaphyllou, 2000). The application steps of this method are given below (Hwang & Yoon, 1981).

**Step 1:** Construction of the decision matrix

The rows of the construction decision matrix ($C = \{C_j | j = 1,2, \ldots, n\}$) contain criteria and the columns ($A = \{A_i | i = 1,2, \ldots, m\}$) contain alternatives (Equation 1).

$$D = \begin{array}{c c} & \begin{array}{c c c c c c} C_1 & C_2 & \cdots & C_j & \cdots & C_n \end{array} \\ \begin{bmatrix} x_{11} & x_{12} & \cdots & x_{1j} & \cdots & x_{1n} \\ x_{21} & x_{22} & \cdots & x_{2j} & \cdots & x_{2n} \\ \vdots & \vdots & \cdots & \vdots & & \vdots \\ x_{i1} & x_{i2} & \cdots & x_{ij} & \cdots & x_{in} \\ \vdots & \vdots & \ddots & \vdots & & \vdots \\ x_{m1} & x_{m2} & \cdots & x_{mj} & \cdots & x_{mn} \end{bmatrix} & \begin{array}{c} A_1 \\ A_2 \\ \vdots \\ A_j \\ \vdots \\ A_m \end{array} \end{array} \qquad (1)$$

**Step 2:** Normalization of the data set

The criteria values in the decision matrix are normalized using Equation (2).

$$r_{ij} = \frac{x_{ij}}{\sqrt{\sum_{i=1}^{m} x_{ij}^2}} \quad (i = 1,2, \ldots, m \ ve \ j = 1,2, \ldots, n) \tag{2}$$

**Step 3:** Weighting of the normalized decision matrix

A weighted normalized decision matrix is constructed using the determined $w_j$ weight values and $r_{ij}$ values (Equation 3).

$$
V = \begin{bmatrix}
w_1 r_{11} & w_2 r_{12} & \cdots & w_j r_{1j} & \cdots & w_n r_{1n} \\
w_1 r_{21} & w_2 r_{22} & \cdots & w_j r_{2j} & \cdots & w_n r_{2n} \\
\vdots & \vdots & \cdots & \vdots & & \vdots \\
w_1 r_{i1} & w_2 r_{i2} & \cdots & w_j r_{ij} & \cdots & w_n r_{in} \\
\vdots & \vdots & \ddots & \vdots & & \vdots \\
w_1 r_{m1} & w_2 r_{m2} & \cdots & w_j r_{mj} & \cdots & w_n r_{mn}
\end{bmatrix}
$$

$$
= \begin{bmatrix}
v_{11} & v_{12} & \cdots & v_{1j} & \cdots & v_{1n} \\
v_{21} & v_{22} & \cdots & v_{2j} & \cdots & v_{2n} \\
\vdots & \vdots & \cdots & \vdots & & \vdots \\
v_{i1} & v_{i2} & \cdots & v_{ij} & \cdots & v_{in} \\
\vdots & \vdots & \ddots & \vdots & & \vdots \\
v_{m1} & v_{m2} & \cdots & v_{mj} & \cdots & v_{mn}
\end{bmatrix} \tag{3}
$$

**Step 4:** Determining ideal solution values

In this step, the maximum and minimum values of the columns are calculated using Equation (4) and Equation (5).

Positive ideal solution: $A^+ = (v_1^+, v_2^+, \ldots, v_n^+)$
$$v_j^+ = \begin{cases} \max v_{ij}, \ j \in N \ \ i = 1,2, \ldots, m \ \ for \ best \ criterion \\ \min v_{ij}, \ j \in N \ \ i = 1,2, \ldots, m \ \ for \ worst \ criterion \end{cases} \tag{4}$$

Negative ideal solution: $A^- = (v_1^-, v_2^-, \ldots, v_n^-)$
$$v_j^- = \begin{cases} \min v_{ij}, \ j \in N \ \ i = 1,2, \ldots, m \ for \ best \ criterion \\ \max v_{ij}, \ j \in N \ \ i = 1,2, \ldots, m \ for \ worst \ criterion \end{cases} \tag{5}$$

**Step 5:** Calculating distances to ideal solution values

At this stage, the values closest to the positive ideal solution and farthest from the negative ideal solution are calculated using Equation (6) and Equation (7).

$$S_i^+ = \sqrt{\left(v_{ij} - v_j^+\right)^2}, \qquad i = 1,2, \ldots, m; j = 1,2, \ldots, n \tag{6}$$

$$S_i^- = \sqrt{\left(v_{ij} - v_j^-\right)^2}, \qquad i = 1,2, \ldots, m; j = 1,2, \ldots, n \tag{7}$$

**Step 6:** Determining the closeness to the ideal solution

The closeness values to the ideal solution are calculated by using Equation (8).

$$C_i^* = \frac{s_i^-}{s_i^- + s_i^+} \qquad C_i^* \ (0 \leq C_i^* \leq 1) \tag{8}$$

As shown above, this method, which features understandable and straightforward calculation steps, has been widely adopted in the literature. Joshi et al. (2020) examined the performance of agro-tourism clusters with TOPSIS and AHP methods. Similarly, Weerathunga et al. (2020) evaluated the sustainability performance of Sri Lankan hotels using the Entropy-based TOPSIS method, within the scope of 25 hotels listed on the Colombo Stock Exchange. Jahanishakib and Mohammadpour (2021) examined the environmental factors influencing tourism development in the Lut Desert using the TOPSIS and DPSIR methods. Türegün (2022) employed the TOPSIS and VIKOR methods in evaluating the financial performance of tourism enterprises listed on the BIST.

## Research Findings

The effectiveness of the developed Green and Financial Performance Index (GFPI) was analyzed using the TOPSIS method in the Mandarin Oriental Hotel Group application example between 2014 and 2023. In this regard, the first step involved constructing the decision matrix. All criterion values for each alternative are listed under the green performance and financial performance dimensions in Table 2, specifying the target values.

**Table 2.** Decision Matrix

| Dimension | | Green Performance | | | | | Financial Performance | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sub-Dimension | | Water | Energy | Emission | Waste | Recycle | Liquidity | Profitability | Solvency | Efficiency | Market |
| Indicator | | Water Intensity | Energy Intensity | Emission Intensity | Waste Intensity | Diversion Rate | Current Ratio | Return on Assets | Liabilities to Equity Ratio | Asset Turnover | Earnings per Share |
| Abbreviation | | WI | EI | EmI | WasteI | DR | CR | ROA | LER | AT | EPS |
| Unit | | liters/$m^2$ | MJ/$m^2$ | kg CO2-Eq/$m^2$ | kilograms/$m^2$ | % | % | % | % | % | US¢ |
| Target Value | | Min. | Min. | Min. | Min. | Max. | Max. | Max. | Max. | Max. | Max. |
| Alternative/ Criteria | | C1 | C2 | C3 | C4 | C5 | C6 | C7 | C8 | C9 | C10 |
| A1 | 2014 | 3.805 | 1.627 | 193 | 12,24 | 30 | 1,15 | 0,05 | 0,99 | 0,36 | 9,29 |
| A2 | 2015 | 3.719 | 1.614 | 192 | 11,60 | 31 | 2,67 | 0,05 | 0,53 | 0,32 | 7,44 |
| A3 | 2016 | 3.691 | 1.605 | 186 | 12,04 | 34 | 1,90 | 0,03 | 0,59 | 0,32 | 4,40 |
| A4 | 2017 | 3.935 | 1.598 | 182 | 10,04 | 34 | 1,71 | 0,03 | 0,59 | 0,30 | 4,37 |
| A5 | 2018 | 3.961 | 1.594 | 181 | 9,33 | 36 | -0,50 | 0,02 | 0,76 | 0,28 | 3,44 |
| A6 | 2019 | 3.757 | 1.530 | 175 | 9,06 | 44 | 1,93 | -0,01 | 0,24 | 0,11 | -4,39 |
| A7 | 2020 | 3.511 | 1.129 | 138 | 5,00 | 32 | 1,09 | -0,15 | 0,30 | 0,04 | -53,84 |
| A8 | 2021 | 3.708 | 1.243 | 147 | 6,13 | 34 | 1,64 | -0,03 | 0,33 | 0,07 | -11,19 |
| A9 | 2022 | 3.728 | 1.323 | 146 | 7,86 | 37 | 1,77 | -0,01 | 0,29 | 0,11 | -3,92 |
| A10 | 2023 | 3.931 | 1.422 | 155 | 7,89 | 40 | 0,96 | -0,10 | 0,26 | 0,15 | -28,91 |

After the decision matrix was constructed, the relevant matrix was normalized. In the next stage, the weighted normalized decision matrix was obtained. Following the calculation of the positive ideal and negative ideal solution values, the relative closeness values to the ideal solution were determined. The GFPI scores obtained as a result of the analyses are given in Table 3.

**Table 3.** GFPI Scores of Mandarin Oriental Hotel Group

| Ranking | Year | GFPI Score |
|---|---|---|
| 1 | 2015 | 0,7794 |
| 2 | 2017 | 0,7311 |
| 3 | 2016 | 0,7286 |
| 4 | 2014 | 0,6474 |
| 5 | 2019 | 0,6279 |
| 6 | 2022 | 0,6274 |
| 7 | 2018 | 0,5637 |
| 8 | 2021 | 0,5444 |
| 9 | 2023 | 0,3371 |
| 10 | 2020 | 0,2179 |

When Table 3 is examined, it can be seen that the GFPI score in 2015 is in first place, with a value of 0.7794. The year 2017 ranks second with 0.7311, and 2016 ranks third with 0.7286. The last three places are occupied by 2021, 2023, and 2020. The green and financial performance of the Mandarin Oriental Hotel Group over the years is shown in Figure 4.
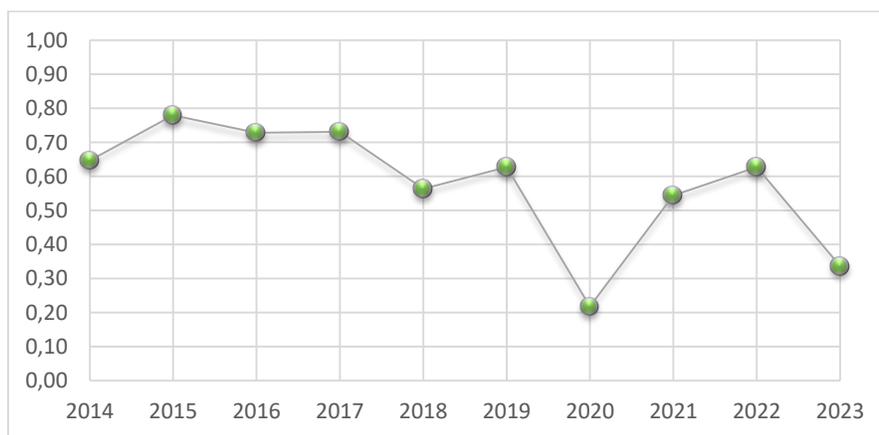


**Figure 4.** Green and Financial Performance of Mandarin Oriental Hotel Group

## Conclusion

Environmental issues are becoming increasingly important in the financial system. It is increasingly apparent that environmental factors play a crucial role in financial management. Several factors, including investor expectations, consumer preferences, and resource scarcity, suggest that financial parameters alone are insufficient for measuring financial management performance and that environmental factors should also be considered. Sustainable and effective financial management cannot be achieved by ignoring ecological factors.

Accordingly, a composite index consisting of "green performance" and "financial performance" dimensions, namely the Green and Financial Performance Index (GFPI), was developed in this study. The effectiveness of the GFPI was evaluated using the TOPSIS method by analyzing the financial reports and sustainability reports of the Mandarin Oriental Hotel Group in the tourism sector from 2014 to 2023. In the obtained GFPI score ranking, it can be seen that the highest scores were obtained in 2015, 2017, and 2016. The lowest GFPI scores were obtained in 2020, 2021, and 2023.

This study is the initial research in the tourism sector to combine environmental and financial variables by developing a composite index. Obtaining an overall performance score by integrating these variables enables analysis of financial management efficiency and comparison to other firms. In this context, the use of a composite index that includes green performance, which measures environmental impacts and financial performance, is expected to be effective in the decision-making and policy-making processes of firms in the tourism sector. The limitation of the study's generalizability lies in its focus on a single firm and a single sector In future studies, the model's effectiveness is expected to be tested using other methodologies, and the results will be compared. The model can be structured by diversifying indicators across different sectors, and its evaluation can be performed on multiple company samples.

## Declaration of Conflicting Interests

## Funding

## Statements of Publication Ethics

We hereby declare that the study has no unethical issues and that research and publication ethics have been observed carefully.

## Researchers' Contribution Rate

The study was conducted and reported with equal collaboration among the researchers.

## Ethics Committee Approval Information

The study does not require ethics committee approval.

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# GENİŞLETİLMİŞ ÖZET

Günümüzde artan yatırımcı beklentileri, bilinci tüketicilerin tutumları ve öncelikleri ile birlikte firmaların karar verme süreçlerinde sürdürülebilirlik ve yeşil performans konuları ilgi odağı olmuştur. Turizm sektöründe finansal yönetime ilişkin performans değerlemesini amaçlayan çalışmalar incelendiğinde yaygın olarak sadece finansal göstergelerin kullanıldığı görülmektedir (Sheehan & Ritchie, 1997; Bankole, 2002; Shamaileh & Khanfar, 2014; Hiadlovský vd., 2016; Onuferová vd., 2020).

Sürdürülebilirlik konularının gelişimi ve bu konudaki artan bilinç ile birlikte turizm sektörünün finansal yönetiminde çevresel unsurlar öne çıkmış ve bu konudaki çalışmalara ağırlık verilmiştir (Diaz & Kien, 2019). Tzschentke vd. (2004) konaklama işletmelerinin çevresel uygulamaları benimseme nedenlerini değerlendirmiştir. Bu nedenlerin sadece ekonomik olmadığı, etik unsurların da çevresel faaliyetlere katılımda etkili olabileceğini belirtilmiştir. Ham ve Han (2013) tavsiye etme, ziyaret etme ve fiyat primlerini kabul etme niyetlerini kapsayan müşteri sadakatinde otellerin çevresel uygulamalarının rolünü araştırmıştır. Leonidou vd. (2013) Yunan otel sektöründe gerçekleştirdiği çalışmasında rekabet avantajı yaratmada ve yeşil pazarlama stratejilerinin benimsenmesinde yeterli finansal ve fiziksel kaynağa sahip olmanın etkili olduğunu öne sürmüştür. Cvelbar ve Dwyer (2013) stratejik planlamada sürdürülebilirlik unsurlarının rolünü araştırmıştır. Benzer şekilde Franzoni (2015) ve Weerathunga vd. (2020) turizm sektöründe sürdürülebilirlik performans değerlemesini gerçekleştirmiştir.

Prud'homme ve Raymond (2013) sürdürülebilir kalkınma uygulamalarının konaklama endüstrisi üzerindeki etkilerini araştırmıştır. Anket çalışmaları sonucunda bu uygulamaları benimsemenin müşteri memnuniyetini olumlu yönde etkilediği tespit edilmiştir. Singal (2014) sürdürülebilirlik girişimlerine yapılan yatırımlar ile firmaların finansal performans arasındaki ilişkiyi inceledikleri çalışmasında diğer sektörlere göre konaklama firmalarının çevresel uygulamalara daha fazla yatırım yaptığı tespit sonucuna ulaşmıştır. İlgili çalışmada, bu sektördeki yüksek finansal performansın sürdürülebilirlik yatırımlarını beraberinde getirdiği ve sonrasında da müşteriler tarafından finansal olarak desteklendiği vurgulanmıştır.

Jackson vd. (2015) çok boyutlu bir ölçekleme yaklaşımı ile turizm firmalarının çevresel ve finansal performansları arasındaki bağlantıyı araştırmıştır. Finansal performansı yüksek olan firmaların çevresel performanslarında da ilk sıralarda konumlandığı sonucuna ulaşılmıştır. Bunun sebebinin finansal olarak başarılı olan firmaların çevresel girişimlere yönelik daha fazla kaynak ayırabilmesi şeklinde yorumlanmış ve finansal açıdan gösterilen etkinliğin çevresel peformans üzerinde etkili olabileceği üzerinde durulmuştur. Benzer şekilde Jackson vd. (2015) de turizm firmalarının çevresel ve finansal performanslarını ele almıştır. Mazhenova vd. (2016) turizm kuruluşları ve otellerin sürdürülebilirlik uygulamaları ve çevresel sorumluluk konularında turistlerin tutum ve farkındalıklarını değerlendirmiş, turistlerin çevre bilinçlerinin satın alma davranışlarında etkili olduğu sonucuna varmıştır. Çevresel farkındalığı yüksek düzeyde olan turistlerin yeşil uygulamaları benimseyen otel ve turizm kuruluşları tercih ettiği gözlenmiştir. Tan vd. (2017) turizm ve seyahat endüstrisinde çevresel performansın firma performansı üzerindeki etkisini 2003-2014 dönemleri için araştırmış, çevresel performansın finansal performans üzerinde olumlu etkileri olduğunu ortaya koymuştur. Bodhanwala ve Bodhanwala (2022) sürdürülebilirliği temsil eden ESG performansı ile borsa değerlemesi ve karlılık ilişkisini turizm ve seyahat sektöründe incelemiştir. Becerra-Vicario vd. (2022) çevresel performansı konusunda gelişme gösteren otellerin daha iyi finansal performans sonuçlar elde ettiğini tespit etmiştir.

Küresel düzeyde finansal ve çevresel göstergelerden oluşan composite index çalışmaları bulunmakta ve ülkelerin bu alandaki performansları karşılaştırılabilmektedir (Shah vd., 2019; Iqbal vd., 2021; Wang vd., 2021; Bhatnagar vd., 2024). Turizm sektöründe turizm politikası geliştirme, sürdürülebilir turizm değerlemesi ve sürdürülebilir turizm kalkınma performansını değerlemeye yönelik endeksler geliştirilmiştir (Castellani & Sala, 2010; Ghoochani vd., 2020; Cesarini & Terraglia, 2023).

Bu alanda kaydedilen ilerlemeye rağmen, araştırmacıların ve yöneticilerin finansal karar verme süreçlerinde daha etkin ve bütüncül bir değerleme yoluyla karşılaştırma yapmasına yönelik araştırma eksikliği bulunmaktadır. Literatürde söz konusu boşluğa katkı sağlamak üzere bu çalışma, çevresel ve finansal unsurların bir arada değerlendirilerek tek bir performans notu elde edilmesine olanak sağlayan "green performance" ve "financial performance" ana boyutları temelinde komposit bir endeks geliştirmeyi amaçlamaktadır. Bu doğrultuda ilk olarak "yeşil performans" boyutu altında su, enerji, emisyon, atık ve geri dönüşüm; "finansal performans"

boyutunda ise likidite, karlılık, kaldıraç, etkinlik ve piyasa boyutları oluşturulmuştur. Ardından literatürdeki çalışmalar, Mandarin Oriental Hotel Group'un sürdürülebilirlik ve finansal raporları incelenerek yeşil ve finansal performans boyutları altındaki göstergeler belirlenmiştir. Her bir gösterge eşit ağırlıklandırılarak "Yeşil ve Finansal Performans Endeksi (Green and Financial Performance Index-GFPI)" geliştirilmiştir. Ardından göstergelere ait değerler içerik analizi yöntemi ile elde edilmiştir. Geliştirilen GFPI'nın etkinliği 2014-2023 dönemi arasında Mandarin Oriental Otel Grubu uygulama örneğinde TOPSIS yöntemi kullanılarak test edilmiştir. TOPSIS yönteminde öncelikle karar matrisi oluşturulmuştur. Karar matrisinin yapılandırılmasının ardından ilgili matris normalize edilmiştir. Bir sonraki aşamada ağırlıklandırılmış normalize karar matrisi elde edilmiştir. Pozitif ideal ve negatif ideal çözüm değerlerinin hesaplanmasına takiben ideal çözüme göreli yakınlık değerleri belirlenmiştir. Elde edilen GFPI puan sıralamasında en yüksek puanların 2015, 2017 ve 2016 yıllarında alındığı görülmektedir. En düşük GFPI değerleri ise 2021, 2023 ve 2020 yıllarında elde edilmiştir.

Bu çalışma, turizm sektörü örneğinde çevresel ve finansal unsurların bir araya getirilerek composite bir endeks öne sürmesi yönüyle literatüre katkı sağlamaktadır. Birden fazla unsurun birleştirilerek tek bir performans notu oluşturulması finansal yönetimde etkinliğin ölçümüne ve diğer işletmelerle karşılaştırılabilmesine imkân tanımaktadır. Geliştirilen GFPI'nın tek bir sektör ve firma örneği üzerinde incenmesi çalışmanın genellenebilirlik sınırlılığını oluşturmaktadır. Takip eden çalışmalarda GFPI'nın diğer sektörlerde, TOPSIS'in yanı sıra farklı teknikler ile analiz edilerek elde edilen sonuçların karşılaştırılması beklenmektedir.