

**EVALUATION OF ESG PRINCIPLES IN SUSTAINABILITY REPORTING WITH  
CONTENT ANALYSIS: EXAMPLES OF AIRLINE COMPANIES IN TÜRKİYE AND THE  
WORLD**

**SÜRDÜRÜLEBİLİRLİK RAPORLAMALARINDA ESG İLKELERİNİN İÇERİK ANALİZİ İLE  
DEĞERLENDİRİLMESİ: TÜRKİYE ve DÜNYADAKİ HAVAYOLU ŞİRKETLERİ ÖRNEKLERİ**

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**ABSTRACT**

While the negativities experienced in climate change increase awareness about sustainability, the factors affecting this cause a decrease in consumption in individuals and bring the reporting of performances to the agenda in companies. As a result of the relevant developments, it is requested that enterprises organize sustainability reports covering their performance in three-dimensional reporting (environmental, social and governance) within the scope of the “Sustainability Principles Compliance Framework”. The aim of the study is to reveal the compliance levels of Turkish Airlines companies traded on Borsa Istanbul (BIST) with the general principles, environmental principles, social principles and corporate governance principles within the scope of the “Sustainability Principles Compliance Framework” in their sustainability reports for the years 2022-2023. In addition, the study aimed to evaluate the information in the ESG principles of the top 5 airline companies in the world through content analysis. Thus, it was tried to determine the sensitivity of airline companies to sustainability both in Türkiye and in the world. As a result of the analysis, it was determined that THY company fully complies with ESG principles, and in the statements determined for ESG principles, ESG scores were generally high in THY and Korean Air companies in terms of environmental, social and corporate sustainability policy elements.

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## ÖZET

*İklim değişikliğinde yaşanan olumsuzluklar sürdürülebilirlik konusunda farkındalığı artırırken buna etki eden faktörler, bireylerde tüketimin azalmasına, şirketlerde ise performansların raporlanmasını gündeme getirmektedir. İlgili gelişmeler neticesinde, “Sürdürülebilirlik İlkeleri Uyum Çerçevesi” kapsamında yer alan üç boyutlu raporlamaya (çevresel, sosyal ve yönetim) ilişkin işletmelerin performansını kapsayan sürdürülebilirlik raporlamalarını düzenlemeleri istenmektedir. Çalışmanın amacı, 2022-2023 yılları Borsa İstanbul (BIST)’de işlem gören Türk Havayolu şirketlerinin düzenledikleri sürdürülebilirlik raporlarında “Sürdürülebilirlik İlkeleri Uyum Çerçevesi” kapsamında yer alan genel ilkeler, çevresel ilkeler, sosyal ilkeler ve kurumsal yönetim ilkelerine uyum derecelerinin ortaya konulmasıdır. Ayrıca çalışmada, dünyada en iyi 5 havayolu şirketinin ESG ilkelerinde yer alan bilgilerin içerik analizi ile değerlendirilmesi amaçlanmıştır. Böylece hem Türkiye hem de dünyada havayolu şirketlerinin sürdürülebilirliğe olan duyarlılığı tespit edilmeye çalışılmıştır. Analiz sonucunda, THY şirketinin ESG ilkelerine tam uyum sağladığı, ESG ilkeleri için belirlenen ifadelerde ise genel olarak çevresel, sosyal ve kurumsal sürdürülebilirlik politika unsurlarında THY ve Korean Air şirketlerinde ESG skorlarının yüksek olduğu tespit edilmiştir.*

## 1. INTRODUCTION

The unlimited needs of human beings have increased the diversity in business activities. The increasing diversity in activities has accelerated the competition problem and brought environmental problems with it. Thus, when consumption increased, climate change problems began to emerge. This competition with no clear end has also accelerated the destruction of nature. As living spaces began to shrink, individual actions also emerged. Businesses did not remain indifferent to these actions and tried to reduce the environmental problems that emerged in their activities. Since the current accounting system is inadequate, there is a need to report non-financial data in addition to financial data. Especially for investors, businesses with environmental and social awareness come to the fore. In the face of all these developments, environmental problems have become a common problem of the world and sustainability awareness has gained momentum.

Businesses use human, capital and natural resources to maintain their competitiveness, increase profitability and create value for their customers. Environmental, social and economic problems such as waste of resources, abnormal warming and famine have created a global concern (Khan et al., 2022; Umar et al., 2021; Schaltegger et al., 2022). In this context, climate change, which has emerged as an important problem in the world, rapid consumption of natural resources, changes in digitalization and economic events have caused changes in the expectations of both society and businesses. Thus, stakeholders now need non-financial reporting in addition to financial reporting and also want to have information on environmental and social activities in addition to economic processes. (Korga & Aslanoğlu, 2024).

Problems such as climate change and pollution caused by uncontrolled industrialization and waste of resources create serious concerns in the future of the world. Therefore, while people meet their needs today, they need to protect ecosystems and use resources more efficiently in a way that will meet the needs of future generations (Çakmak & Çalis, 2024).

Financial and non-financial (sustainability reporting, integrated reporting) data are used in measuring the performance of businesses. Sustainability is of great importance for organizations and their partners. In addition to financial data, businesses prepare sustainability reports regarding the non-financial “environmental, social, governance” (ESG) activities they carry out. The aforementioned reports reveal the transparency of businesses and allow investors to evaluate their non-financial data and evaluate the contribution of businesses to sustainability in making important decisions (Acar Uğurlu & Özbingöl, 2024).

Sustainability refers to the efficient use of limited resources to produce goods and services in order to ensure the continuation of life in the future. This concept, which adopts an environmental approach, brings a perspective to prevent negative situations that arise as a result of excessive consumption of limited resources (Özulucan et al., 2024).

The concept of sustainability emerged with the "Brundtland Report" of the "World Commission on Environment and Development" published in 1987. In the report in question, the concept of sustainability is defined in three dimensions, namely "environmental, social and governance". ESG concepts are a measure that includes many of the concepts of environmental responsibility and corporate social responsibility (Yıkılmaz, 2022). Nowadays, businesses do not only focus on economic factors while carrying out their activities, but also take ESG principles into consideration in terms of creating long-term value for their stakeholders. The three related principles increase the value of the business by making a positive contribution to the corporate image, reputation and stock prices (Bumin & Demir, 2021).

Sustainability reports are reports that provide value to businesses and cover many non-financial issues, from customer relations to climate change. Sustainability reports provide stakeholders with information about the company's place in society and its responsibilities (KGK, 2023).

There are different approaches in terms of both the scope and the declaration of the scope in the ESG concepts in the definition of sustainability of businesses. The most common form of these approaches is the direct declarations of the businesses, which can vary from reporting with the content they determine on their web pages (Beyazyol & Ataman Gökçen, 2023). Therefore, sustainable development has become important in the face of climate change, food and energy crisis, political conflicts, destruction of natural areas, forced migrations and similar factors (Bozoğlu & Cigirim, 2022).

The aim of this research is to examine the compliance levels of ESG principles in sustainability reporting, which is important for businesses in terms of preventing climate change, which has become the focus of the world, and taking the necessary measures. The study was conducted within the scope of Turkish airline companies traded on BIST. In the study, the 2022-2023 sustainability reports of "Turkish Airlines" and "Pegasus Airlines" companies traded on BIST were examined and their compliance levels with ESG rules were evaluated. In addition, the study aimed to evaluate the information in the ESG principles of the top 5 airline companies in the world with content analysis. When the literature is examined, it is seen that there are numerous studies on sustainability and sustainability reporting at national and international scales. The studies conducted on the subject in the literature have been addressed in different dimensions both theoretically and within the scope of research. Although the research is similar to other studies, the fact that both the sampling of Turkish airlines and the comparison of the ESG principle compliance level and the content analysis of the sustainability reports of the top 5 airline companies in the world made the study different.

It would be useful to provide information about Turkish Airlines Inc. and Pegasus Airlines Inc., which are traded on BIST and included in the study. There are currently two airline companies traded on BIST, namely Borsa Istanbul: Turkish Airlines Inc. and Pegasus Airlines Inc. The first airline company of Turkey, initially established as the State Airlines, is Turkish Airlines Inc., with its current name. This company, which was affiliated with the Ministry of National Defense in 1933, when it was first established, acquired a more special structure in the following years. The company, which increased the number of aircraft and the airports to which it operated, especially in 1943 and 1945, made a major breakthrough by increasing the number of cities it served to 19 in the relevant dates. In 1947, the company made its first international flight from Istanbul to Athens, the capital of Greece, and started international flights. The company, which became a member of the International Air Transport Association IATA, one of the most important international organizations in the civil aviation sector, in 1956, went public much later in 1990. The company, which went public with a very small share of 1.53%, started its official website as [www.thy.com](http://www.thy.com) in 1998. The company, which closely followed technology and communication channels in the relevant period when the effects of the concept of the internet were felt in human life, made air travel easier by showing its customers different ways of earning thanks to the Miles&Smiles program it started in 2000. Turkish Airlines Inc., which joined the strategic partnership of Star Alliance, another international and very large organization, in 2008, took another important step in expanding its network among international aviation alliances. Sponsorships are very important in terms of recognition in terms of marketing. Turkish Airlines started its international promotions with the naming sponsorship agreement in Euroleague Basketball in 2013 and increased it even more with the UEFA 2016 sponsorship agreement in 2015. In the following years, it continued to win many successes in terms of both sponsorship and quality awards (Türk Hava Yolları, 2025).

Pegasus Airlines Inc., another airline company traded on Borsa Istanbul, was founded in 1990 as a joint venture between Aer Lingus, Silkar Investment and Net Holding. The company, which made its first flight in May 1990, determined its operational and strategic structure as a low-cost airline company. The company, which started to operate domestic flights for the first time in 2005, chose Istanbul Sabiha Gökçen Airport as its main base. The company, which made its first scheduled international flight to Stuttgart, Germany in 2006, continues its operations as Turkey's largest and only publicly held domestic private airline company by increasing both its fleet and route structure every day. Pegasus Airlines Inc. is the first private airline company to be listed on Borsa Istanbul (BIST) in 2013 with a 34.5% share (Pegasus Hava Yolları, 2025).

Information about the companies listed among the top 5 airlines in the world in 2024 is as follows;

Qatar Airways, the national airline of Qatar based in Doha, is a global company with more than 190 aircraft. It operates worldwide, especially to destinations such as Africa, Central Asia, Europe, the Far East, and America. It is one of the fastest growing airlines in the world in terms of operational and fleet numbers. In addition to passenger aircraft, the airline also has cargo aircraft of the Airbus and Boeing brands. It has maintained its leading position in Skytrax 2024, which is considered the most prestigious of the international aviation industry awards, and has been selected as the World's Best Airline for the eighth time in total. In addition to holding many first places in the same organization as the airline with the World's Best Business Class Lounge, the airline with the World's Best Business Class, and the Best Airline in the Middle East, it has received the same awards again in 2024. Qatar Airways is also the first airline in the Middle East to have the highest level of certification from IATA's Environmental Assessment program, based on environmental management principles called ISO 14001. The company currently flies to more than 170 destinations worldwide and uses Doha Hamad International Airport as its hub. Hamad International Airport was also selected as the world's best airport by the Skytrax international rating agency in 2021, 2022 and 2024. In addition, the airport in question received the award for both the best airport in the Middle East for 10 consecutive years and the world's best airport shopping mall for two consecutive years in 2024 (Qatar Airways, 2025).

Korean Air started its operations on March 1, 1969 with only eight aircraft. Using Seoul's Incheon Airport as its central airport, the company currently flies to more than 130 destinations worldwide. Korean Air's regions include Asia, North America, Europe, Oceania and Africa, making it a major player in the global civil aviation industry. The company is also an active member of the SkyTeam alliance in the international civil aviation sector, which is centered in Asia, and in this way, the company is able to serve a worldwide connection network. The company, which currently has more than 160 aircraft in its fleet, offers quality service with its young fleet equipped with the latest technology. In surveys conducted in 2022, Korean Air has won first places by receiving the highest votes in customer satisfaction scores. The company, which has won many awards such as Skytrax's best airline awards and the best business class flight of the year, continues to improve the customer experience and offer innovations (Korean Air, 2025).

The beginning of Cathay Pacific Airlines is in 1946. Air transportation, which started with product shipments from Australia to China, was taken to another level with the acquisition of Hong Kong Airlines in 1959. It is also of great importance in terms of being the first airline company to offer a first class passenger cabin at the relevant dates. The fact that the company was the first company to offer seat-back screens in 1992, the first company to fly directly from New York to Hong Kong, and the first company to receive the Skytax World's Best Airline Award in 2014 also show the most important features of the company that distinguish it from other airlines. The airline company, which has received countless awards since its establishment, draws attention as the company that has received the most awards in this field. The airline company, which has a net zero emission target by 2050, also provides both quality and reliable service in cargo flights. The company, which has a total of 177 aircraft, continues its operations as a pioneering company in this field by organizing flights to more than 90 destinations. The company celebrated its 70th anniversary in 2016. As of March 2021, its major shareholders are Swire Pacific with a 42.3% stake, Air China with a 28.2% stake and Qatar Airways with a 9.4% stake (Cathay Pacific Airlines, 2025).

Air New Zealand is a global airline company that carries passengers and cargo domestically and internationally in New Zealand. The company carries more than 15 million passengers annually and flies more than 3,400 times a week to 50 destinations. The company, which aims to connect New Zealanders to each other and the world, is the country's flag carrier and national airline. The company, which operates its flights from Auckland International Airport, operates flights to more than 50 destinations in 16 countries in Asia, Europe, North America and Oceania. It has been a member of the Star Alliance, an international civil aviation alliance organization, since 1999. The company, which has more than 100 aircraft in its fleet, is 53% owned by the New Zealand government. In addition to being selected as the safest company in the world by Airlineratings in 2025,

the company has also won awards in many areas such as best in-flight food, best in-flight entertainment and many more in previous years (New Zealand Air, 2025).

Emirates is an airline company founded in 1984 with the idea of the then UAE Minister of Defense and a member of the royal family of Dubai. On October 25, 1985, it organized its first flights from Dubai to Karachi and Mumbai with Boeing 727 and Airbus A 300 B4 aircraft leased from Pakistan International Airlines with its staff. The company expanded its flight network to 14 destinations in its fifth year of operation and made history in aviation by becoming the first company in the world to install video systems in every seat in all cabin classes in an aircraft in 1992. The company was also the first company to launch telecommunication services in all classes on Airbus brand aircraft in 1993. The company, which acquired 43% of Sri Lankan Airlines in 1998, has signed very large sponsorships in addition to its numerous innovations and pioneering aircraft orders. In addition to the award it won for the most valuable airline brand in 2014, it has achieved very difficult successes by winning the world's best airline company award in 2016 and then winning the best in-flight entertainment system award 12 times in a row. The airline, which is owned by the Dubai government, has closed every year with a profit except for the first two years since its establishment. Emirates, which currently has one of the youngest aircraft fleets in the world, has a total of more than 260 aircraft, all of which are wide-body. Today, it flies to more than 140 destinations in more than 75 countries (Emirates, 2025).

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## 2. SUSTAINABILITY AND SUSTAINABILITY REPORTING

The development of technology, the increase in competition, the growth of businesses in free market conditions and similar factors have made the processes more complex and have led to stakeholders needing more information at the point of decision making. Therefore, financial reporting alone is no longer sufficient in decision-making processes. Especially due to global problems and excessive consumption of scarce resources, the whole world is focused on the concept of "sustainability" (Ng & Tavitiyaman, 2020). In other words, negative situations such as economic growth, poverty, hunger and corruption have made the concept of sustainability and sustainable development more important (Tüyen, 2020).

The main goal of businesses is to maximize the profit they will earn as a result of their activities. Therefore, businesses ignore environmental factors and consume excessive resources in order to achieve their goals. This situation has required non-financial information to be reported in businesses in a competitive environment. Businesses that are aware of this situation and take environmental factors into consideration have started to be more sensitive about sustainability in recent years (Özulucan et al., 2024).

The concept of sustainability refers to meeting current needs without endangering the needs of future generations, taking into account the interactions between social and environmental systems (Ng & Tavitiyaman, 2020). The concept of sustainability is concerned with meeting the needs of both current and future generations to use resources. Therefore, it describes how society will integrate its social, environmental and economic concerns over time (Kazemi et al., 2023). In other words, corporate sustainability is a business model in which businesses create long-term value and maintain their assets by evaluating the opportunities that arise within the scope of social, environmental and economic developments and managing the risks in question (Camilleri et al., 2023). Therefore, it is important for businesses to focus on goals such as social equality, nature protection and economic growth, as well as growth and profit-making (Vardari et al., 2020).

As in many scientific fields, the concept of sustainability has increased its importance in accounting and management. The negative situations that have emerged in climate change have revealed the importance of the concept of sustainability and made it necessary to develop strategies related to sustainability (Rahi et al., 2023). Therefore, it is important for accounting professionals to have sustainability literacy in order to prepare sustainability reports and carry out sustainability audits correctly (Albinssona et al., 2020).

As the concept of sustainability gains importance, businesses organize sustainability reporting and share non-financial information with the public in addition to financial information. There are a number of standards that businesses refer to when preparing sustainability reporting. Some of the standards in question are as follows; "AA1000 (Accountability 1000)", "United Nations Global Compact (UNGC)", "Communication on Progress Reporting (COP)", "OECD Guidelines for Multinational Enterprises", "IFC Performance Standards", Carbon Disclosure Project (CDP)". The most preferred sustainability reporting standards are the standards published by the "Global Reporting Initiatives (GRI)" (Global Reporting Initiative, 2022).

Sustainability reporting is a report that provides stakeholders with information about a company's role in society and its contribution to society, and provides information showing a company's performance in environmental, social and governance matters (Akdoğan, 2024). Sustainability reporting plays an important role in ensuring that business information is understood by internal and external stakeholders, and ensures that the information needs of shareholders are met and continuity is maintained against other sectors in which it operates (Benvenuto et al., 2023).

Sustainability reporting of businesses can be implemented compulsorily or voluntarily within the scope of the country and sector. Voluntary declaration of activities in sustainability reporting may also become mandatory with changing legislation over time. In Turkey, the “Sustainability Principles Compliance Framework Reporting” prepared and implemented by the Capital Markets Board (SPK) can be given as an example. SPK “Sustainability Principles Compliance Framework Report, A. General (A1 - Strategy, policy and targets, A2 - Implementation/Monitoring, A3 - Reporting, A4 - Verification, B. Environment (Environmental Principles), C. Social (C.1. Human rights and employee rights, C.2. Stakeholders, international standards and initiatives), D. Corporate Governance (Corporate governance principles) and includes the basic principles for publicly traded companies to disclose their environmental, social and corporate governance activities (Güngör, 2020; Gürsoy & Özuyar, 2024).

Regulations regarding sustainability reporting have gained momentum in Turkey. In this process, the CMB has put the “Sustainability Principles Compliance Framework” into effect as of 2021. The regulation, which introduced the “comply or explain” practice regarding environmental, social and corporate governance reports, aims to ensure that more businesses engage in activities in compliance with sustainability principles (CMB, 2024; Yücel, 2024). The standards published by the “International Sustainability Standard Board (ISSB)” and accepted by the Public Oversight Authority (KGK) are specified as “Turkish Sustainability Reporting Standards (TSRS)” as “TSRS 1- General Provisions on Disclosure of Financial Information Related to Sustainability” and “TSRS 2- Climate-Related Disclosures” (KGK, 2024; Yücel, 2024). The standards in question were published in the Official Gazette dated 29/12/2023 and numbered 32414 (1.M), and TSRS became mandatory in Turkey as of 01.01.2024. Organizations that pass at least two of the criteria described in two consecutive reporting periods are required to complete their sustainability reports. The relevant criteria are as follows (KGK, 2024);

- Number of employees 250 or more
- Total assets of 500 million Turkish liras and above
- Annual net sales revenue of 1 Billion Turkish Lira and above is stated as

In addition to the measures taken by businesses for a sustainable life, some individual measures can also be taken. For example, participating in recycling, saving energy, reducing resource consumption and using environmentally friendly products will provide significant benefits for a sustainable life. Everyone is responsible for a sustainable life and all the necessary conditions for a sustainable life can be provided with individual and global steps (Çıtak & Ünlü, 2024).

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### 3. LITERATURE REVIEW

While creating the literature, some of the studies conducted on ESG principles in sustainability reporting are as follows;

In the study of Vu et al. (2025), where daily data was taken between 2004 and 2022, ESG-based investments were investigated in stocks in 23 environments called developed markets. As a result of the research, it was stated that there was a weak level of interaction between expected income and ESG ratings, and high ESG stocks showed moderately low performance compared to low-grade stocks.

In the research conducted by Ayvaz and Awale (2024), the relationship between financial performance and sustainability reporting was examined on companies trading in the BIST index. As a result of the study, it was understood that there was a positive but insignificant relationship between profitability and sustainability reporting.

In their study, Huang et al. (2024) investigated the effects of sustainability reporting of companies

operating in China between 2009 and 2021 on ESG ratings based on six basic textual features: length, readability, tone, standard language, redundancy and completeness. The study stated that the length and completeness of sustainability reporting significantly affected ESG scores among institutions.

In the research conducted by Korga and Aslanoğlu (2024), the sustainability reports of 23 manufacturing companies operating in the sustainability index of BIST for the period 2017-2021 were examined in terms of the importance levels of economic, environmental and social sustainability data sets. In the research, it was understood that the female manager group had the indicator with the highest weight factor, while the factor with the lowest weight factor was the amount of waste.

In the study conducted by Rençber (2024), the first and only airline company to continue its work in the index called BIST Sustainability 25 in the 8-year period between 2014 and 2022, the corporate sustainability success of Turkish Airlines was addressed within the scope of environmental, social and economic factors. According to the results, it was understood that the economic sustainability performance was relatively higher in 2022, and the most successful period in terms of environmental impacts and sustainability success was 2019, whereas the least successful year was 2017. In terms of social sustainability performance, it was determined that the most successful year was 2021 and the least successful year was 2020.

Işık (2024) discussed the assurance and consultancy roles of the internal audit function in sustainability and ESG processes in his study. As a result of the research, it was stated that the internal audit function benefits sustainability and ESG processes with objective assurance and consultancy services.

In their study, Çakmak and Çalış (2024) investigated the extent to which the ESG Scores of companies included in the BIST Sustainability Index affected the financial and stock market performances of the companies between 2019-2022, and the possible factor loads of the ESG Scores of companies with an ESG score above and below 70 points on the stock market performance. After the study, it was seen that the effect of the relevant factors on the income of the companies was in the right direction but with a low correlation, and it was stated that no significant correlation was reached in the statistics of values other than the profit margin.

In the study conducted by Kurt et al., (2024), the effects of the 4-year financial statements published by companies traded on BIST for the period 2018-2022 on ESG scores were examined by independent auditors who were examined for their opinions. The study concluded that organizations with higher ESG performance are less likely to make fraudulent or misleading financial reporting compared to businesses with relatively lower ESG performance.

In the study conducted by Tajuddin et al., (2023), the interaction between the economic parts, primarily environmental and social, shown as sub-dimensions of sustainability, and the capacity size and working independence of the board of directors was investigated. According to the research results, it was stated that the interaction between ESG principles and the independence and size of the board of directors was seen as negative.

In the research conducted by Karyağdı and Şit (2023), they examined the interaction of ESG performances with the costs of the capital owned by the enterprises and their financial operating performance. As a result of their study, they stated that ESG performances have a strong positive effect on the "Active Profitability" part of the enterprises considered.

In their study, Yıldırım and Yaman (2023) examined the sustainability performances of banks operating in Turkey between 2018 and 2022. In the research, it was observed that the sustainability performances of banks changed over the years and depending on the analysis method.

In their study, Koçyiğit et al. (2023) examined whether the companies included in the 2021 sustainability index had information that needed to be disclosed within the scope of the "Sustainability Principles Compliance Framework" and the degree of compliance of the companies that included the information with the principles in the said framework. According to the findings, it was stated that the companies mostly included the information that was expected to be disclosed in the "Sustainability Principles Compliance Framework" section and that they almost completely complied with the principles.

In their research, Onocak et al. (2023) examined the policies seen in the sustainability compliance reports of insurance companies traded in the BIST index, in addition to their sustainability reports, based on the

content analysis method. As a result of the study, it was understood that the political factors that insurance companies take into consideration in the field of environmental sustainability are especially energy management.

In Yıkılmaz (2022) study, ESG scores of 32 companies were calculated by S&P Global for the period 2017-2021. The interaction between these scores and the contractual dividend distribution rate was examined. After the study, it was concluded that ESG scores have positive effects on dividend distribution.

Feng et al., (2022) examined the interaction between ESG scores and share earnings for the period 2011-2022 for 684 companies in China. After the study, they found that ESG scores as share earnings were negatively affected in the long term, except for the short term, and positively affected in the short term.

Aydoğmuş et al., (2022) investigated the impact of environmental, social, governance performance on firm value and profitability in their study. After the study, it was seen that environmental, social and governance performance had a strong relationship between firm value and company profitability.

In the research conducted by Saygılı et al., (2022), they examined the impact of environmental, social and governance practices of companies traded in the BIST index between 2007 and 2017 on corporate financial performance indicators. As a result of the study, it was stated that environmental disclosures had negative effects on performance indicators, that the participation of stakeholders in management contributed to operational effectiveness in the social field, and that the regulations regarding shareholding rights and the board of directors in the governance dimension positively affected performance indicators.

In their study, Acar et al. (2021) checked the factors affecting the entry of companies into BIST as Sustainability in the 17-year period between 2011-2018, financial or non-financial variables in 431 companies. According to the findings, it was observed that factors such as board independence, size, audit committee independence, the existence of sustainability practices within the company, the four major audit companies and the age of the responsible auditor had a positive effect on their status of being traded in the BIST sustainability index.

Another study conducted by Şişman and Çankaya (2021) aimed to understand the effects of the ESG scores of 26 airline companies between 2010 and 2017 on the financial performance of the companies. After the study, they found that the ESG scores in the civil aviation sector in general did not have a statistically positive effect on the financial activities of airline companies, but there was a statistically significant interaction between ROA, defined as active profitability, and the general ESG score.

Ting et al., (2020) examined the impact of ESG scores on financial performance of companies operating in developed and developing markets in their study. After the study, it was seen that ESG scores have positive effects on organizational performance.

When the literature is evaluated, it is seen that the sustainability reports of the companies are addressed from various perspectives. In the studies conducted, it has been determined that the compliance level and ESG scores of the sustainability reports have not been studied within the scope of Turkish and world airline companies. In this direction, the aim of the study is to evaluate the ESG dimensions of Turkish Airlines and Pegasus Airlines companies traded in the BIST index on four basic groups as "Sustainability Principles Compliance Framework" as total rules, environmental principles, social principles and corporate governance principles. The compliance levels and factors of the relevant principles are classified into 4 groups as Yes, Partially, No, Irrelevant. This model of the study is similar to the study of Çil Koçyiğit et al. (2023), and the comparative consideration within the scope of the 2022-2023 "Sustainability Principles Compliance Framework" differentiates the study. In addition, the content analysis of the information in the ESG principles of the 5 best airline companies in the world was evaluated in the study. This model of the study was inspired by the studies of Onocak et al. (2022) and the ESG scores of Turkish Airlines and the top 5 airlines in the world were comparatively addressed. The comparative evaluation of the ESG scores of the two Turkish Airlines companies in their sustainability reporting with the "Sustainability Principles Compliance Framework" both in Turkey and worldwide differentiates it from the studies conducted in the literature. The absence of a similar study in the literature indicates the main reason for the study. For this reason, it is expected that the relevant study will contribute to the literature in this sense.



## 4. RESEARCH

This section includes information about the purpose, method and evaluations of the research.

### 4.1. Purpose and Method of the Research

Within the scope of the research, Turkish Airlines and Pegasus Airlines companies traded on BIST were taken as samples and their 2022-2023 sustainability reports were examined. The aim of the research was to evaluate the level of compliance in the 2022 and 2023 sustainability reports of the relevant companies regarding the environmental, social and governance principles, which are called three-dimensional within the scope of the "Sustainability Principles Compliance Framework". It was examined what the ESG principles were and what the company addressed in its ESG principles. The ESG data of the relevant companies were accessed through the Public Disclosure Platform (KAP) and their sustainability reports. In the study, dependent groups t-test methods and information on ESG principles were evaluated using the content analysis method. The dependent groups t-test was conducted in order to determine whether the ESG principles issues between 2022 and 2023 have changed significantly. The content analysis method is as follows; it consists of the processes of systematically and objectively classifying, converting into numbers and making inferences the messages contained in verbal, written or other materials. It is defined as "Data can be defined using content analysis and some hidden facts in the data used can be identified and revealed" (Deniz, 2021). Since the 2022 and 2023 ESG principles of Turkish Airlines and Pegasus Airlines companies in Table 1 were used in the research, these two groups (2022-2023) are dependent groups. In the study, the information reported in the ESG principles of the top 5 airline companies in the world was evaluated with the content analysis method and the ESG principles were evaluated as a score. A comparison of ESG scores was made both in Turkey and in the world. The lists of the companies within the scope of the research are visualized in Table 2.

**Table 1.** Airlines Traded on BIST

Number	Code	Company Name
1	THYAO	Türk Hava Yolları A.O.
2	PGSUS	Pegasus Hava Taşımacılığı A.Ş.

Source: <https://www.kap.org.tr/tr/Endeksler>

**Table 2.** The Top 5 Airlines in the World

Number	Country	Company Name
1	Qatar	Qatar Airways
2	South Korea	Korean Air
3	Hong Kong	Cathay Pacific Airways
4	Australia	Air New Zealand
5	BAE	Emirates

Source: <https://www.forbes.com/sites/2024/05/27/the-worlds-best-airlines>

## 5. RESEARCH FINDINGS

The study aims to check whether the number of ESG principles topics of two Turkish airlines in 2022 is significantly different from the number of ESG principles topics in 2023. The 22nd version of the Statistical Package for Social Sciences Data (SPSS) software was used to obtain, analyze and evaluate the descriptive statistics of the ESG principles in question. First of all, the normal distribution of the data for 2022 and 2023 was examined.

There are various statistical methods to evaluate whether the ESG principles are normally distributed in the relevant study; while the Shapiro-Wilk test is a more appropriate method for small-sized samples of less than 50; both the Shapiro-Wilk test and the Kolmogorov-Smirnov test can be used to check the normality of large-sized samples of 50 or more. Therefore, when the data has a normal distribution, the parametric test should

be used. However, when the data here does not show a normal distribution, the non-parametric "distribution-free" test should be used (Özsoy & Gürler, 2023).

The hypotheses for the test for normal distribution are as follows:

$H^0$ : ESG principles are statistically normally distributed.

$H^1$ : ESG principles are not statistically normally distributed.

In this context, “according to the normality test, if the p value is greater than the predefined significance level,  $p=0.05$  is accepted as the critical value. If the p statistic value in question is greater than the 0.05 critical value, the  $H^0$  hypothesis cannot be rejected, and if it is less than the 0.05 critical value, the  $H^0$  hypothesis is rejected.” (Özsoy & Gürler, 2023).

In the study, normal distribution tests of ESG principles for 2022 and 2023 are presented in Table 3.

**Table 3.** Normality Tests

<b>Tests of Normality<sup>b,c</sup></b>						
	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
PGSUS2022	,537	56	,000	,282	56	,000
PGSUS2023	,496	56	,000	,408	56	,000
a. Lilliefors Significance Correction						
b. THYAO2022 is constant. It has been omitted.						
c. THYAO2023 is constant. It has been omitted.						

As seen in Table 3, since ESG principles do not show normal distribution; probability values are less than 0.05, and the " $H^0$ " hypothesis, which suggests that the data is normally distributed, is rejected. Since ESG principles do not show normal distribution, Spearman's Rho test was applied for the correlation between the two variables. Since THYAO2022 and THYAO2023 are fixed, they were excluded from the analysis and the normal test value was not calculated. The results are presented in Tables 4 and 5.

**Table 4.** Correlations Review of ESG Principles for 2022-2023

<b>Correlations</b>					
		PGSUS2022	THYAO2022	PGSUS2023	THYAO2023
Spearman's rho	PGSUS2022	Correlation Coefficient	1,000		
		Sig. (2-tailed)		,268*	
		N	56	56	56
	THYAO2022	Correlation Coefficient			
		Sig. (2-tailed)			
		N	56	56	56
	PGSUS2023	Correlation Coefficient	,268*	1,000	
		Sig. (2-tailed)	,046		
		N	56	56	56
	THYAO2023	Correlation Coefficient			
		Sig. (2-tailed)			
		N	56	56	56

\*, Correlation is significant at the 0.05 level (2-tailed).

As seen in Chart 4, there is a positive correlation of 0.268 between PGSUS-2022 and PGSUS-2023. ESG principles compliance levels are determined as Yes (3), Partially (2), No (1), Irrelevant (0), and since the 3.00 positive correlation between THYAO-2022 and THYAO-2023 is at the same value (constant), the result was not calculated. The average performance values of the companies in question are visualized in Table 5.

**Table 5.** Average Performance Values of ESG Principles for 2022-2023

	Average
PGSUS-2022	2,929
PGSUS-2023	2,804
THYAO-2022	3,000
THYAO-2023	3,000

As seen in Table 5, within the scope of the "Sustainability Principles Compliance Framework", it is seen that the level of compliance of THY company with the sustainability performance of general principles, environmental principles, social principles and corporate governance principles is high, while the compliance levels of PGSUS company were high in 2022 and decreased in 2023.

### 5.1. ESG Principles Scores

The sustainability compliance level elements were coded according to their frequency of occurrence using the Python programming language, "pymupdf" and "matplotlib. Pyplot", and the relevant codes were evaluated under three main groups: "environmental", "social" and "governance". Thus, it was tried to reveal the importance of the issues reported in each ESG principle by determining which issues are addressed in what extent in the ESG principles.

**Environmental (E) Score:** *"It is the score calculated as a result of the studies and investments made by the companies regarding environmental factors (use of resources, gas emissions and innovation activities)."* **Social (S) Score:** *"It is the score calculated as a result of the studies and investments made by the companies regarding social factors (labor, human rights, society and product responsibility)".* **Governance (G) Score:** *"It is the score calculated as a result of the studies and investments made by the companies regarding the governance factors (management, shareholders and corporate social responsibility)"* (Şişman & Çankaya, 2021).

In this context, 6 criteria have been determined for the environmental sustainability implemented by the enterprises: "energy management", "carbon emissions", "climate crisis", "water management", "waste management" and "biodiversity".

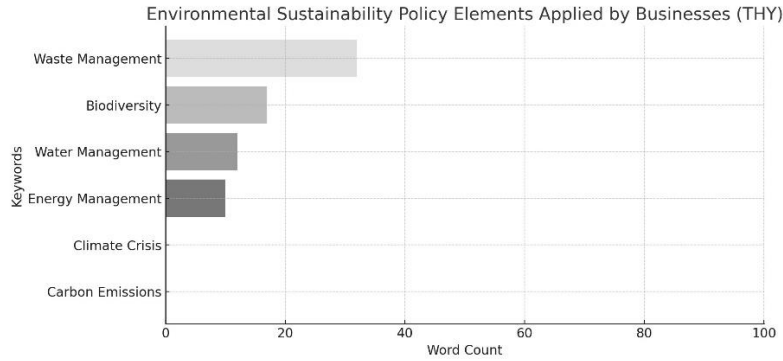
Six criteria have been determined for social sustainability; "employee rights", "ethical policies", "communication with stakeholders", "customer satisfaction", "social responsibility", "employee motivation".

Six criteria have been determined for corporate sustainability, and the criteria in question are stated as "risk management", "financial performance", "corporate governance", "brand management", and "fighting against bribery and corruption" (Onocak et al., 2023).

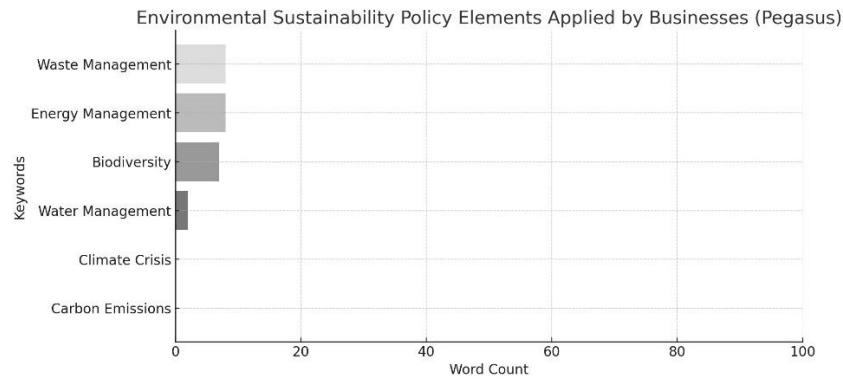
#### 5.1.1. Information on Environmental Sustainability

The frequency of repetition of the expressions related to the environmental sustainability policy elements of "energy management", "carbon emissions", "climate crisis", "water management", "waste management" and "biodiversity" of 7 airline companies, which were sampled from Turkey and the world by examining the relevant sustainability reports, is visualized in Figure 1.

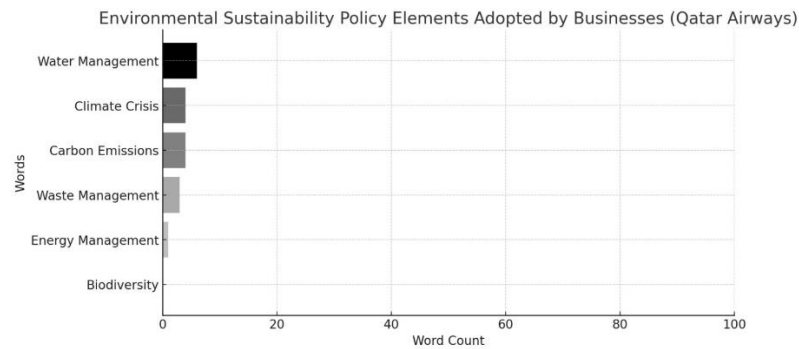
**Figure 1. Environmental Sustainability Policy Elements**



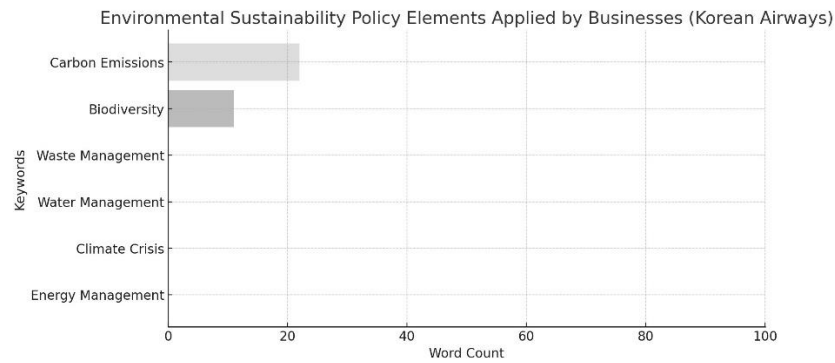
When the environmental sustainability policy elements within the scope of THY was evaluated; energy management (10), water management (12), waste management (32) and biodiversity element (17) were repeated times.



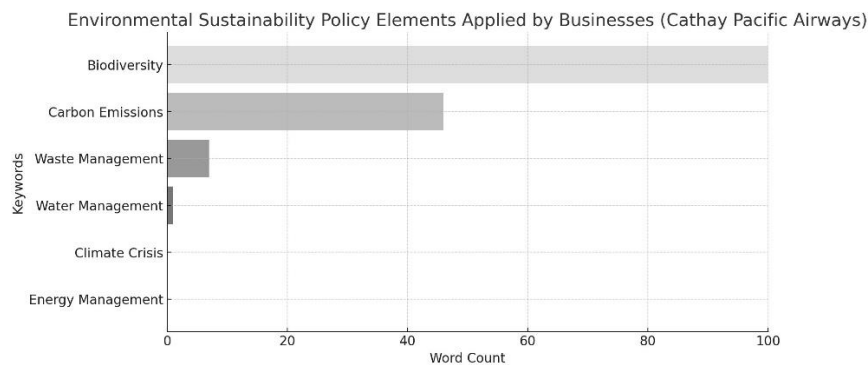
When environmental sustainability policy elements were evaluated within the scope of PGSUS; energy management (8), water management (2), waste management (8) and biodiversity element (7) were repeated.



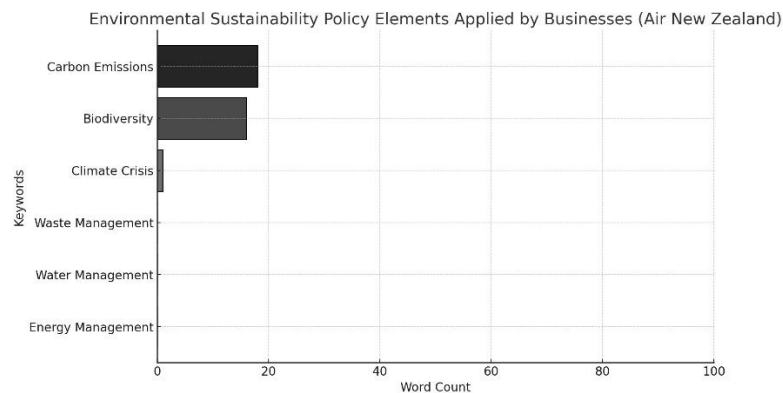
When the environmental sustainability policy elements were evaluated within the scope of Qatar Airways; energy management (1), carbon emissions (4), climate crisis (4), water management (6), waste management (3) were repeated times.



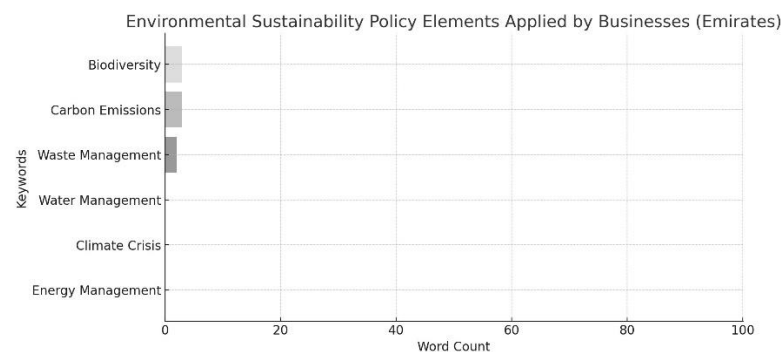
When environmental sustainability policy elements were evaluated within the scope of Korean Airways; carbon emissions (22), biodiversity (11) and climate crisis (4) were repeated times.



When the environmental sustainability policy elements of Cathay Pacific Airways were evaluated; carbon emissions (46), water management (1), waste management (7), biodiversity (198) were repeated times.



When environmental sustainability policy elements were evaluated within the scope of Air New Zealand; carbon emissions (18), climate crisis (1) and biodiversity (16) were repeated times.



When environmental sustainability policy elements were evaluated within the scope of Emirates; carbon emission (3), waste management (2), and biodiversity (3) were repeated.

When the environmental sustainability policy elements are examined in general, it is seen that the most emphasized elements are carbon emission, water management, waste management and biodiversity. Table 6 presents the elements in question.

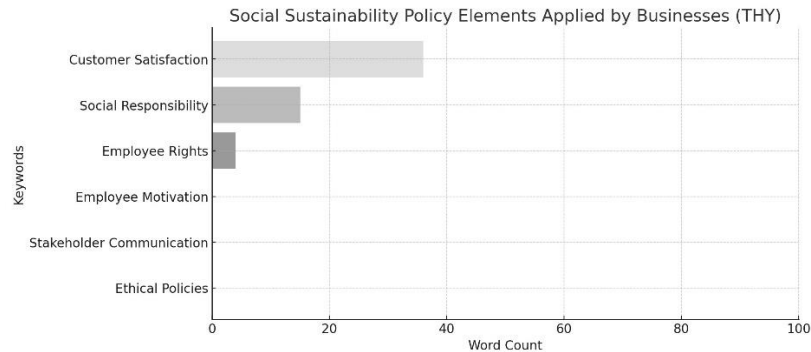
**Table 6.** Environmental Sustainability Scores

Environmental Sustainability Policies	THY	PGSUS	Qatar Airways	Korean Air	Cathay Pacific Airways	Air New Zealand	Emirates
Energy Management	10	8	1	0	0	0	0
Carbon Emissions	0	0	4	22	46	18	3
Climate Crisis	0	0	4	0	0	1	0
Water Management	12	2	6	0	1	0	0
Waste Management	32	8	3	0	7	0	2
Biodiversity	17	7	0	11	198	16	3

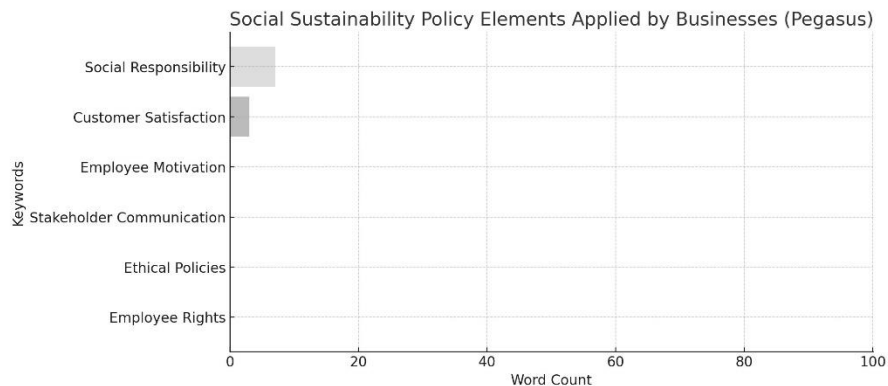
### 5.1.2. Information on Social Sustainability

The frequency of repetition of expressions regarding the social sustainability policy elements of “employee rights”, “ethical policies”, “communication with stakeholders”, “customer satisfaction”, “social responsibility” and “employee motivation” is visualized in Figure 2.

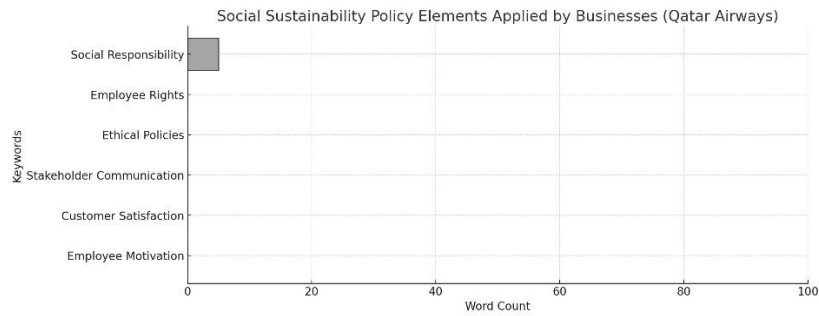
**Figure 2.** Social Sustainability Policy Elements



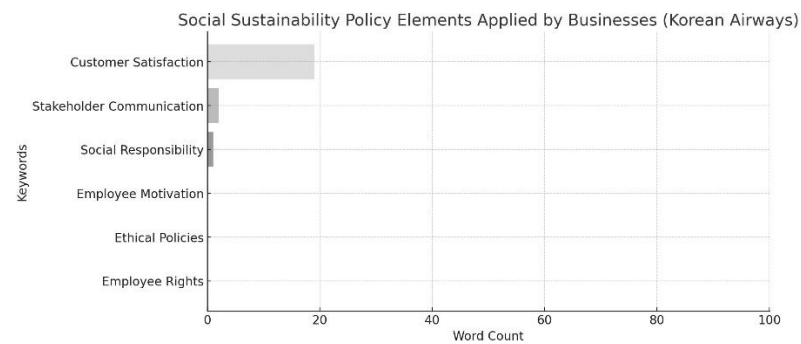
When social sustainability policy elements were evaluated within the scope of THY; employee rights (4), customer satisfaction (36) and social responsibility (15) were repeated.



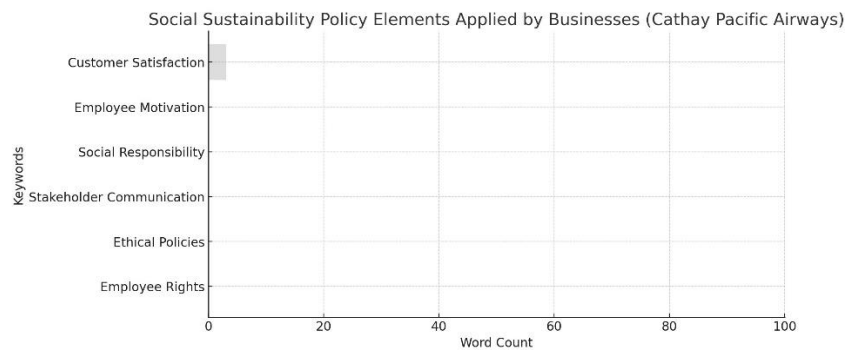
When social sustainability policy elements were evaluated within the scope of PGSUS; customer satisfaction (3) and social responsibility (7) were repeated.



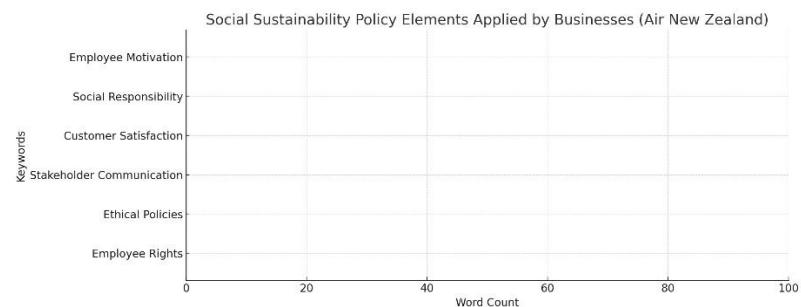
When social sustainability policy elements are evaluated within the scope of Qatar Airways; social responsibility has been repeated (1) times.



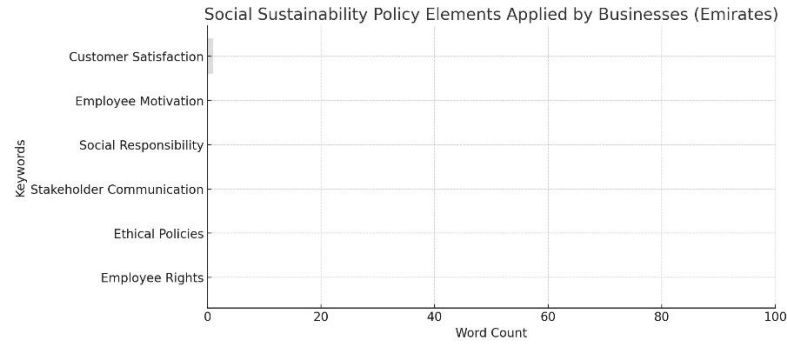
When the social sustainability policy elements were evaluated within the scope of Korean Airways; communication with stakeholders (2), customer satisfaction (19), social responsibility (1) were repeated times.



Cathay Pacific Airways has repeated customer satisfaction (3) times in its social sustainability policy elements.



Social sustainability policy elements are not included within Air New Zealand.



Within the scope of Emirates, customer satisfaction in social sustainability policy elements has been repeated (1) times.

It is seen that the most emphasized elements of social sustainability policy are customer satisfaction and social responsibility. The statements regarding the elements are visualized in Table 7.

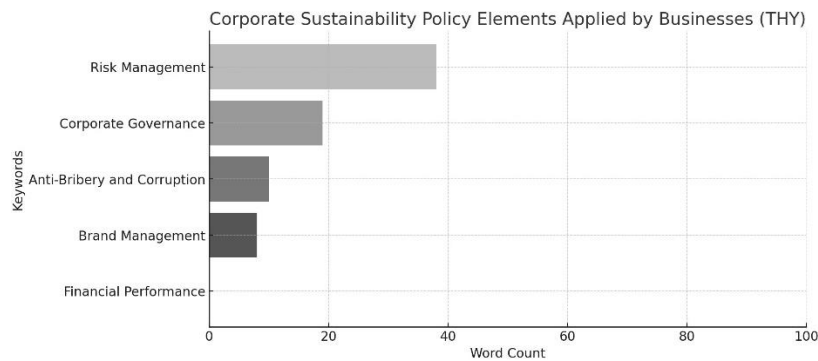
**Table 7.** Social Sustainability Scores

Social Sustainability Policies	THY	PGSUS	Qatar Airways	Korean Air	Cathay Pacific Airways	Air New Zealand	Emirates
Employee Rights	4	0	0	0	0	0	0
Ethical Policies	0	0	0	0	0	0	0
Stakeholder Communication	0	0	0	2	0	0	0
Customer Satisfaction	36	3	0	19	3	0	1
Social Responsibility	15	7	1	1	0	0	0
Employee Motivation	0	0	0	0	0	0	0

### 5.1.3. Information on Corporate Governance

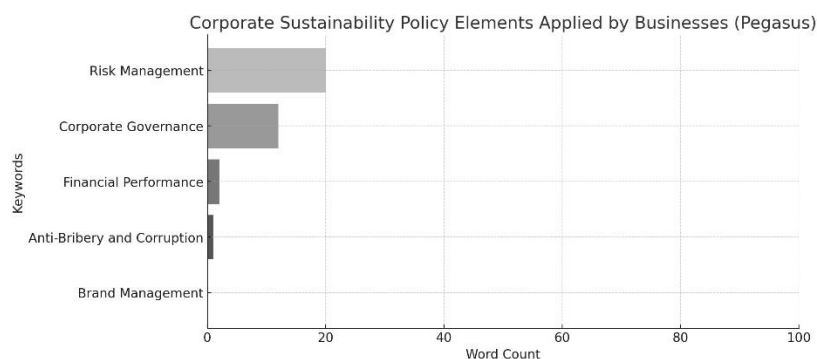
The frequency of repetition of the expressions related to the policy elements of corporate sustainability; “risk management”, “financial performance”, “corporate governance”, “brand management”, “fight against bribery and corruption” are visualized in Figure 3.

**Figure 3.** Corporate Sustainability Policy Elements

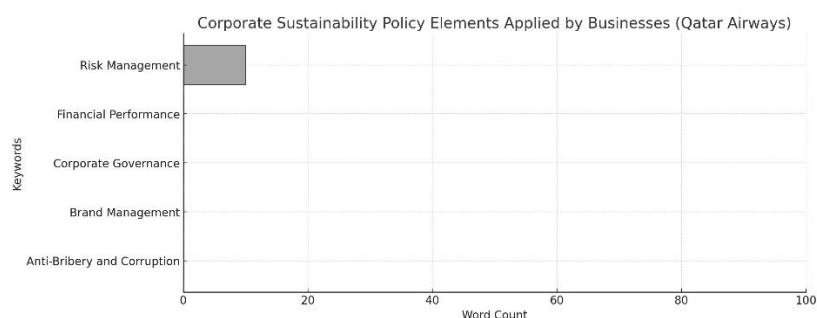


Within the scope of THY, corporate sustainability policy elements were repeated many times: risk management (38), corporate governance (19), brand management (8), and combating bribery and corruption (10).

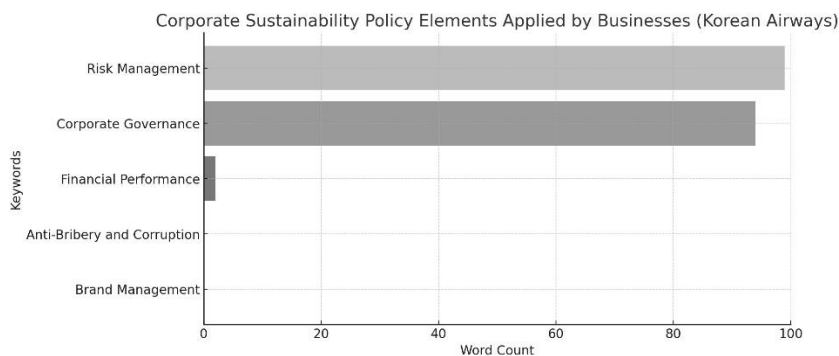




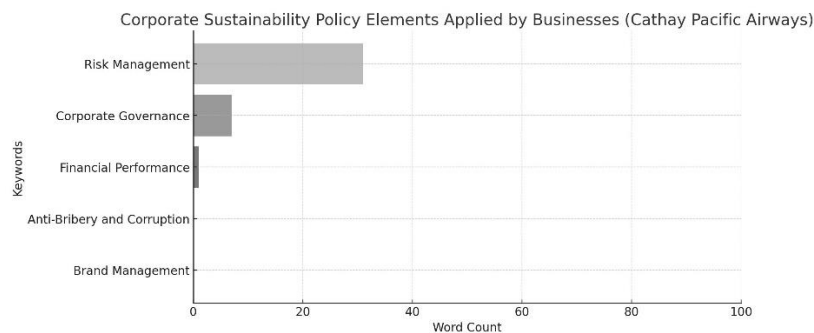
When the corporate sustainability policy elements were evaluated within the scope of PGSUS; risk management (20), financial performance (2), corporate governance (12), and combating bribery and corruption (1) were repeated times.



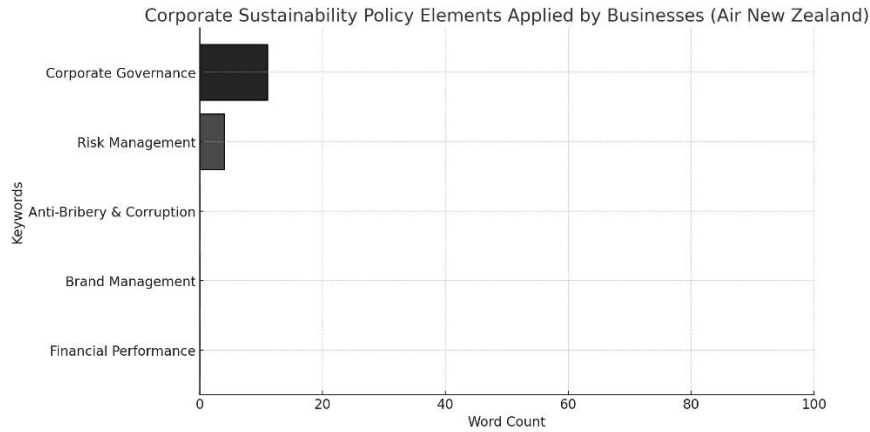
Risk management has been repeated (2) times in the corporate sustainability policy elements within Qatar Airways.



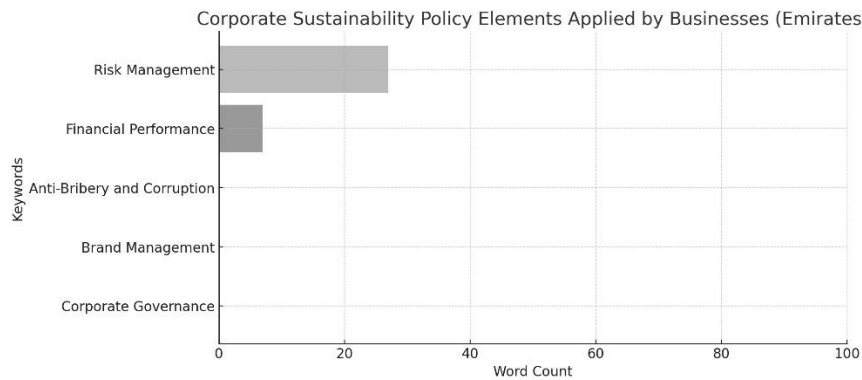
When Korean Airways corporate sustainability policy elements were evaluated; risk management (99), financial performance (2), corporate governance (94) were repeated times.



For Cathay Pacific Airways, the following corporate sustainability policy elements were repeated: risk management (31), financial performance (1), and corporate governance (7) times.



When corporate sustainability policy elements were evaluated within the scope of Air New Zealand; risk management (4) and corporate governance (11) were repeated.



When corporate sustainability policy elements were evaluated within the scope of Emirates; risk management (27) and financial performance (7) were repeated.

It is seen that the most emphasized elements of corporate sustainability policy are risk management and corporate governance. The statements regarding the relevant elements are presented in Table 8.

**Table 8.** Corporate Sustainability Scores

Corporate Sustainability Policies	THY	PGSUS	Qatar Airways	Korean Air	Cathay Pacific Airways	Air New Zealand	Emirates
Risk Management	38	20	2	99	31	4	27
Financial Performance	0	2	0	2	1	0	7
Corporate Governance	19	12	0	94	7	11	0
Brand Management	8	0	0	0	0	0	0
Anti-Bribery & Corruption	10	1	0	0	0	0	0

## 6. CONCLUSION

Globalization, competition, digitalization factors have brought the unlimited needs of humanity to the highest point. Businesses have inevitably increased the diversity in their activities in the face of these expectations. Therefore, businesses that want to keep up with the competitive factor have been guided by diversity. These actions have also caused environmental problems to increase rapidly. In addition, industrialization, population growth, climate change, and abnormal air temperatures are other factors that increase environmental problems. In recent years, the damage to the environment has narrowed life and sensitivity has started to increase among individuals and businesses. While individual consumption has decreased, businesses have started to take measures to reduce environmental problems. The first example of this is the preparation of sustainability reports that require reporting of non-financial information in addition to

financial statements. Now, businesses have to take the lead in reporting their non-financial information as well as their activities in order to ensure continuity in the competitive environment. Thus, businesses that act with this idea take an important place in the market.

The purpose of this study is to reveal the degree of compliance with the general, environmental, social and corporate governance principles in the "Sustainability Principles Compliance Framework" in the sustainability reports prepared by Turkish Airlines and Pegasus Airlines companies traded on BIST for the years 2022-2023. In addition, the study aimed to evaluate the information in the ESG principles of Turkish Airlines and Pegasus Airlines and the top 5 airline companies in the world through content analysis. In other words, the frequency of repetition of the policy elements determined in the ESG principles was tried to be calculated comparatively.

According to the findings, it was observed that Turkish Airlines and Pegasus Airlines, which are traded in the BIST index within the scope of the "Sustainability Principles Compliance Framework", have high compliance with the ESG principles reported in the 2022 and 2023 "Sustainability Principles Compliance Framework". It was observed that THY company complied with the ESG principles at the level of 3.00 in both 2022 and 2023 and implemented all ESG principles. Pegasus Airlines, on the other hand, had a compliance level of 2.929 with the ESG principles in 2022, while it was observed that the compliance level decreased to an average of 2.804 in 2023.

When the information in the ESG principles of Turkish Airlines, Pegasus Airlines and the top 5 airlines in the world were evaluated through content analysis;

The most emphasized element in environmental sustainability policy elements is seen to be "energy management". It has been determined that "carbon emission", "waste management" and "biodiversity" follow this. In the context of Turkey, it has been seen that THY is the company with the frequency of repetition in environmental sustainability policy elements, while in the context of the world, it has been seen that Cathay Pacific Airways is the company with the frequency of repetition of policy elements. However, Qatar Airways is the company that expresses the frequency of repetition of all 6 criteria determined in environmental sustainability policy elements.

In terms of social sustainability policy elements, the most emphasized elements are seen to be "customer satisfaction" and "social responsibility". In the context of Turkey, it is seen that the most frequently repeated elements of social sustainability policy are THY, and in the context of the world, it is Korean Air.

It has been observed that the most emphasized elements in corporate sustainability policy elements are "risk management" and "corporate governance". In the context of Turkey, it is seen that the most frequently repeated elements in corporate sustainability policy elements are THY company, and in the context of the world, it is Korean Air company.

As a result, within the scope of the "Sustainability Principles Compliance Framework", it is seen that THY company fully complies with ESG principles, and in the statements determined for ESG principles, ESG scores are generally high in THY and Korean Air companies in environmental, social and corporate sustainability policy elements. With the study of Onocak et al., (2023), it was determined that environmental and corporate sustainability policy elements, except for social sustainability policy elements, have the same results and the repetition scores of the same policy elements are high worldwide. Thus, the elements of "energy management", "carbon emission", "waste management" and "biodiversity", "risk management" and "corporate governance" are important.

This study was conducted using data from the 2022-2023 sustainability reports of Turkish Airlines, which is traded on BIST, and the top 5 airlines in the world. The study has two main limitations, the first of which is that Turkish Airlines and Pegasus Airlines, which are two important airlines in the context of Turkey, and the top 5 airlines in the world in 2024, were only included as a sample in the study, and the second is that the study covers the years 2022 and 2023. In subsequent studies, it is recommended that other airlines in the airline sector be included in the study, the sample be expanded, different methods be applied, and additional elements be added to the policy elements determined for ESG principles.

**Ethics Committee Declaration**

Ethics committee declaration is not required for the study.

**Author Contribution Rate Declaration**

The entire study was written jointly by the authors.

**Conflict Statement**

There is no conflict of interest between the authors.

**Declaration of Support**

No support was received from any organisation for this study.

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