

An Analysis of the ESG Management Strategies of Small Giant Companies in Busan and Ulsan, Gyeongnam Province

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ABSTRACT

The purpose of this study is to present the ESG management strategy of small giant companies which comes to be the foundation of the best one among top-notch companies and a core of national competitiveness, and to support sustainable management through ESG management and strengthen competitiveness. The importance and priority of ESG factors were derived through AHP analysis. For this purpose, AHP (Analytic Hierarchy Process) analysis was conducted on small giants in the region of Busan, Ulsan, and Gyeongnam Province to determine the scale and priority of K-ESG elements in ESG management strategy.

As a result of AHP analysis, among environment, society, governance, and information disclosure as the top-level factors of ESG, 'environment' was found to be the most important factor, followed by society, governance, and information disclosure. In addition, the verification of information disclosure was recognized as the most important factor in the importance of the sub-factors of information disclosure, environmental management goal in the sub-factors of environment, industrial safety in the sub-factors of society, and ethical management in the sub-factors of governance.

The results of this study have the implications as follows: First, small giants in the regions of Busan, Ulsan, and Gyeongnam Province should recognize the environment as a new value based on the fact that sustainability and long-term growth can be achieved not only by financial performance but also by a healthy environment. Second, voluntary safety education for strengthening industrial safety and efforts to improve a working environment for industrial safety should be continuously carried out. In addition, if companies build trust from their stakeholder groups by carrying out their work transparently, rationally, and fairly through voluntary community service activities and compliance with social ethical norms, it is considered that small giants in the region of Busan, Ulsan, and Gyeongsang Province will be able to pursue sustainability through ESG activities.

On the other hand, since the data was collected locally in Busan, Ulsan, and Gyeongnam Province during the research process, it is somewhat unreasonable to generalize the results of the study. It is thought that further research will be needed to overcome regional limitations. In addition, if a comparative study that can reflect the characteristics of the region where small giants are located is conducted, it is expected that research results with substantial and academic value will be derived. As for the small giant companies located in the region of Busan, Ulsan, and Gyeongnam Province, this study presents the direction of management in the ESG strategy of small giants and ESG management priorities of enterprises.

KEYWORDS

Small giant companies (small giants), ESG, Management Strategy, AHP

1. INTRODUCTION

As the uncertainty has expanded due to the recent COVID-19 crisis, the corporate management paradigm has changed from the pursuit of 'profit and growth-oriented management' to 'sustainable management.' Therefore, in order for companies to continue to grow in the future, it is time to consider both financial and

non-financial performance at the same time. In addition to the existing financial performance, non-financial factors to be considered are ESG, environment, social responsibility, and governance, which is why ESG management is an extension of sustainable management. However, in a survey of 300 domestic companies, though the importance of ESG management is recognized, the actual implementation and management level is still low.

Factors that increase the importance of ESG include positive impacts on business performance, changes in consumer awareness and consumption trends, and increased demand from investors and financial institutions. Existing ESG-related studies have mainly focused on listed companies or companies issuing ESG sustainability reports, and the main content is limited to exploring the correlation between ESG and management performance (D'silva & Balasubramanian, 2022; Jamnik et al., 2024). On the other hand, the policy to support the growth of small and medium-sized companies and venture companies is insufficient, and research to train professional manpower in the field is sufficient. Machine learning can enhance management strategies in SMEs by improving decision-making, optimizing operations, and predicting market trends, enabling these enterprises to adapt quickly and maintain competitive advantages. (Hai & Duong, 2024; Moses et al., 2022; Bong-Hyun et al., 2024).

Therefore, this study aims to derive the importance and priority of ESG factors through AHP analysis on the management strategy of small giants, which are a prerequisite for making top-notch companies emerge as the core of national competitiveness. Furthermore, it suggests the necessity of ESG management of small giants, provides the plan for ESG management strategy for small giants, and presents their implications.

2. THEORETICAL BACKGROUND

2.1. Concepts and Status of Small Giants

Small giants are small but strong enterprises, which can be summarized as small but strong enterprises (Lee, 2009). They contribute to the national economy with small but strong competitiveness. As national competitiveness depends on the emergence of top-notch companies, small giants must exist in order for top-class enterprises to emerge.

[Table 1] summarizes the concepts and characteristics of venture companies, small and medium-sized companies, and small giants based on the data from previous studies.

Table 1. Definition and Characteristics of Small Giant Companies

Item	Venture firm	Small and medium-sized enterprises	Small giants
Definition	The company that develops new technologies and know-how, one that is creative and technology-intensive	Companies protected by the state under the act or law on small and medium enterprises	Companies with small but strong market power
Financing method	Raising funds from outside investors, seeking high-risk, high-returns	Self-funding or government-funded programs are available	Financing with a stable revenue structure and high revenue growth
risk	High risk of failure, but a high return on success expected	It operates in a stable market and has a certain level of profit and stability	Minimize risk through stable and sustainable market power
growing-up tactic	Drive fast growth with innovative products or services	Pursuing progressive growth in traditional industries and markets	Focus on specific markets and customer bases to pursue sustainable growth

Meanwhile, the number of domestic small giants was 14,127 as of 2019, with 1,980 in the southeastern region accounting for 14.0% of the country, the second largest after 7,945 in the Seoul metropolitan area (56.2%). By city and metropolitan city, the number of small giants in Busan was 789, the third largest after 2,680 in Seoul and 823 in Incheon. By province, small giants in Gyeongnam were 968, the second largest after 4,442 in Gyeonggi, followed by Gyeongbuk (813), Chungnam (698), Chungbuk (501), Jeonnam (360), Jeonbuk (301), and Gangwon (214) (BNK Economic Insight, 2021).

[Figure 1] is a diagram of the status of small giants by region.

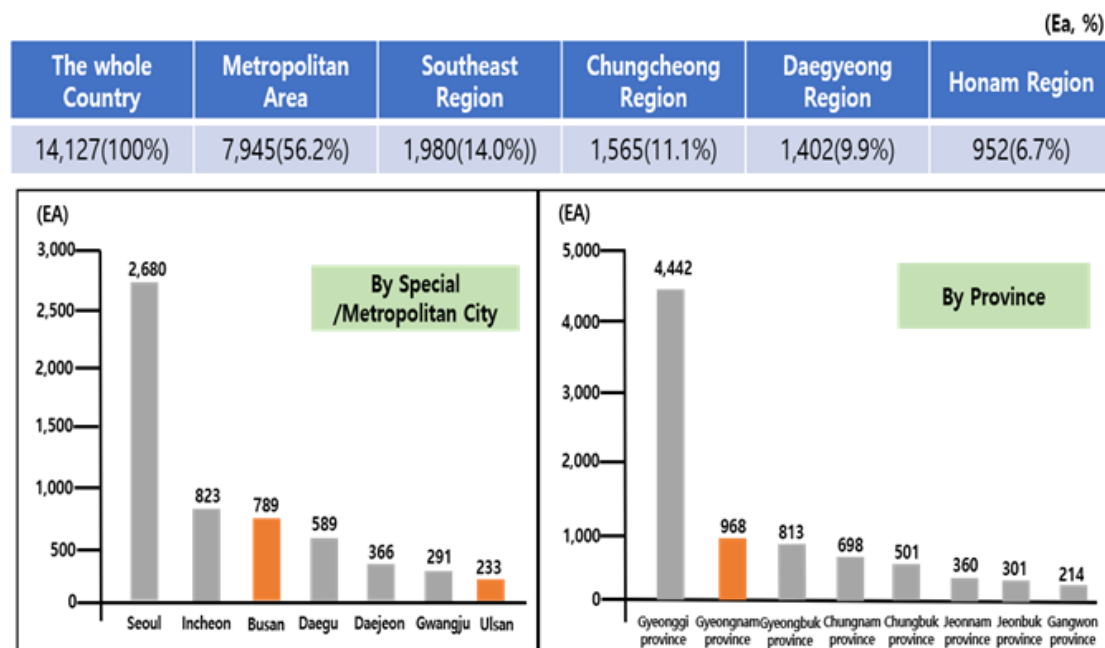


Figure 1. Current Status of Small Giants by Region

2.2. ESG

2.2.1. Concepts of ESG

Since the late 2000s, the number of publications related to ESG has been steadily increasing, and this trend proves the increasing importance of ESG elements in corporate management and sustainability. A total of 274 papers were published from 2011 to April 2022 when the keyword "ESG or ESG management" was investigated using the domestic DBpia database. In particular, the number of papers published in 180 volumes increased significantly in 2021, almost eight times higher than in 23 volumes in 2020. These results show that ESG has become a very relevant and important research topic in corporate management. The analysis of most studies related to ESG so far shows that there is a growing interest in understanding the impact of business activities on sustainability and incorporating ESG elements into business practices. This is because ESG-centric approaches such as CSR (Corporate Social Responsibility) and CSV (Creating Shared Value) can increase long-term profitability, economic value, and stakeholders' benefits of companies (Byun & Woo, 2022).

ESG stands for Environment, Society, and Governance. It is the way of assessment to add a company value not with its financial elements, but with non-financial elements. (Lim & Jung, 2021). By taking ESG factors into account, companies can gain a more comprehensive understanding of the company's overall performance and long-term sustainability. The term ESG first appeared in 2005 when UN Secretary-General Kofi Annan called for participation in the United Nations Principles for Responsible Investment (UN PRI), or socially responsible investment principles in sustainable capital markets through ESG, and now it has become an essential trend that companies must perform in order to receive investment (Kim & Park, 2021). UN PRI presented the cornerstone of the ESG concept emphasized in corporate management in that it focused on ESG as a financial investment principle. In 2019, NASDAQ defined ESG a consideration of a wide range of environment, society, and corporate governance structures that can impact a company's ability to execute its business strategy and create long-term value.

On the other hand, regarding the concept of ESG in Korea, the Korea Exchange explained ESG as a concept that encompasses factors related to environment, society, and governance that can affect the ability of companies to implement corporate strategies and enhance corporate value. Lee Eun-seon and Choi Yoo-Gyeong (2021) said that environment, society, and governance are non-financial factors to be considered along with traditional financial factors in evaluating corporate value. (Lee & Choe, 2021).

Jin (2022), defined ESG as an internalization of external problems such as environmental problems and social problems, which are non-financial factors in corporate management activities, and governance structure which is not streamlined related to agent issue.

In this study, based on the suggested concepts of ESG in previous studies, I would like to define it as a standard in considering the environment, society, and governance, which are non-financial factors affecting

long-term value creation and sustainability management, as well as traditional financial factors for achieving business performance.

Table 2. ESG Concepts in Previous Research

Researcher	Content
UNEP FI (2005)	ESG is a word derived from the initials of non-financial factors such as environment, society, and governance. It is a key factor in considering the financial factors of a company when one makes investment decisions from the perspective of social responsibility or sustainability.
NASDAQ (2019)	Considerations for a broad range of environmental, society, and corporate governance that can impact a company's ability to execute its business strategy and create long-term value.
Korea Exchange (2021)	Criteria for evaluating how companies reflect the concept of stakeholder capitalism in terms of environment, society, and governance throughout management.
Lee Eun-sun and Choi Yoo-kyung (2021)	Environment, society, and governance as non-financial factors to be considered along with traditional financial factors in evaluating corporate value.
Jin mi-kyung (2022)	Internalization of external problems such as environmental problems and social problems, which are non-financial factors in corporate management activities, and governance problems related to agents

2.2.2. ESG Components

ESG management can be seen as a core management strategy in which companies pursue sustainability in terms of environment, society, and governance. The definitions of ESG presented in many previous studies define environment, society, and governance—sustainability factors of corporate management—as non-financial performance. Nevertheless, research on ESG in corporate management has been insufficient in quality and quantity so far. Especially in Korea, there is still a lack of research except for that concerning finance and evaluation of the components (Koh et al., 2021).

Among ESG activities, the environment has great significance in that companies have begun to recognize that they can grow and maintain their business in a healthy environment while pursuing sustainability. Therefore, environmental protection can be regarded as a ‘new value’ of the environment, recognizing that it creates corporate opportunities, not corporate costs. Based on this, companies can strategically carry out environmental activities of sustainable management, which can be defined as environmental management, including green management and eco-friendly management.

Eco-friendly management is part of sustainable management, which means pursuing environmental efficiency without impeding economic efficiency (Lee & Kim, 2015). The eco-friendly belief and consciousness of the CEO is an important driving factor in strategic activities such as environmental protection, and the impact of environmental performance on business performance varies depending on the presence of environmental policy and the presence of a department dedicated to environmental management. Companies reduce environmental costs and increase energy efficiency by complying with environmental regulations, resulting in an increase in corporate image, profitability, and market share (Lee, 2022).

Among the ESG evaluations, ‘society’ includes employment and working conditions, labor-management relations, safety and health in the workplace, human resource development and support, compliance with basic human rights in the workplace, fair trade and anti-corruption, social responsibility promotion, community participation, social contribution and communication with the community. As a result, it can be seen that a company that runs a business model that positively creates social value can expect a positive evaluation and emphasizes social responsibility activities. Corporate social activities are related to corporate social sustainability: corporate social responsibility activities (CSR). Until ESG appeared, CSR was widely used as an activity out of corporate social responsibility.

In ESG evaluation, governance refers to a structure in which an organization makes major decisions to achieve a specific goal. Corporate ‘governance’ refers to the structure that governs a company. The general corporate form of Korea can be seen as a corporation, and there are institutions such as CEO, board of directors, and general shareholders’ meeting, and they make strategic decisions to achieve the purpose of

establishing the company such as maximizing the profit and enterprise value of the company. This structure is called corporate governance.

According to previous studies, corporate governance is seen as a series of mechanisms by which shareholders, who are the owners of a company, monitor and attract managers to match shareholder interests. It is corporate governance that monitors or supervises the activities of a company to create shareholder value. Corporate governance at large refers to the combinatorial relationships between the various factors that influence decision-making, including the responsibilities of the board of directors, the roles of stakeholders, and the rights of shareholders (Choi & Heo, 2007; Hadjinicolaou et al., 2022).

2.2.3. Comparison by ESG Rating Agency

Currently, it is known that there are more than 600 ESG indicators at home and abroad as well as at least 125 ESG evaluation agencies around the world. As the adoption of ESG management among companies has increased, the number of ESG rating agencies has also increased as various organizations such as media companies, consulting firms, trading companies, and financial investment companies have entered the ESG evaluation business (Chun & Park, 2021).

Global ESG evaluation companies such as Refinitiv and Sustainalytics have been in operation since the introduction of ESG, and are also using ESG standard evaluation indicators or developing customized evaluation indicators. In addition, global ESG evaluators are actively involved in developing ESG indices and specific indices for individual investors. On the other hand, domestic ESG evaluation institutions include Sustinvest, Korea Institute of Corporate Governance and Sustainability, and Daishin Economic Research Institute. In particular, Korea Institute of Corporate Governance and Sustainability has the indices of quantitative and qualitative evaluation (Cho & Lee, 2023).

[Table 3] shows the status of core players among domestic and overseas ESG evaluation institutions.

Table 3. Status of Evaluation Indicators by Domestic and Overseas ESG Evaluation Institutions

Division	Organization	Name of Indices	Evaluation Indices	Year
Domestic	Sust Invest	ESG Value	Own Company Model	2006
	Korea Institute of Corporate Governance and Sustainability (KCGS)	ESG evaluation	323 items	2011
	Daishin Economic Research Institute	ESG evaluation	48 items	2017
	Ministry of Industry and Commerce	ESG evaluation	27 items	2021
Overseas	RepRisk	ESG Ratings	28 items	1998
	Dow Jones	DJSI	Maximum 120 items	1999
	Morgan Stanley	MSCI ESG Ratings	37 items	1999
	Sustainalytics	ESG Ratings	70 items	2008

3. Research Design

3.1. Analytical Hierarchy Process (AHP) Analysis

AHP analysis is a variety of reference decision-making methods that effectively capture respondents' knowledge, experience, and intuition using pairwise comparisons between elements within the decision-making hierarchy. This technology easily accepts both subjective and objective evaluation factors. The ability to analyze decision problems through relative comparison, along with simplicity, adaptability, and clear theoretical applications, is an attractive tool for a wide variety of applications across different disciplines (Saaty, 1980)

AHP analysis goes through six steps: problem analysis, pairwise comparison of evaluation criteria, weight estimation, consistency verification, weight synthesis, and decision-making. An important aspect in applying AHP techniques is to stratify the various components required for decision-making according to their purpose. In addition, AHP analysis is a methodology that is relatively less dependent on sample size than other survey techniques (Kim & Song, 2010). The pairwise comparison of decision-making is a relative evaluation between two items. If the importance of evaluation criteria A and criteria B is similar, one can

check the item 1. If the importance of criterion A is greater, one can check in the left direction, and if you think that criterion B is more important, one can check in the right direction (Joo et al., 2022).

In the AHP technique, consistency plays a crucial role in ensuring the reliability of the results, so consistency needs to be verified. If the consistency ratio is less than 10%, it is judged that the judgment of the items made by the evaluator is consistent. If it is less than 20%, it is acceptable, but if it is more than 20%, it is judged to be inconsistent (Song & Lee, 2013).

In this study, the reliability of the questionnaire was verified by using less than 20% as the standard value, and all 20 respondents who participated in the questionnaire had a consistency ratio of less than 20%. In addition, the weighted values for 20 people were added together through the geometric mean to calculate the total weights.

Table 4. Pairwise Comparison Method

Comparison item	Important					Equivalent				Important	Comparison item
A	5	4	3	2	1	2	3	4	5	B	

Table 5. Scale of Relative Importance in Pairwise Comparison

Scales	Definition	Explanation
1	Equally important	The two elements are equally important in light of the higher objectives.
2	Of minor importance	One element is slightly more important than the other.
3	Important	One element is stronger than the other.
4	Of great importance	One element is more important than the other.
5	Extreme importance	One element is absolutely incomparable to another.

3.2. Research Model

This study suggests a step-by-step research model according to the top-level factors based on the K-ESG guidelines of medium and small-sized companies of the Ministry of Commerce, Industry, and Energy.

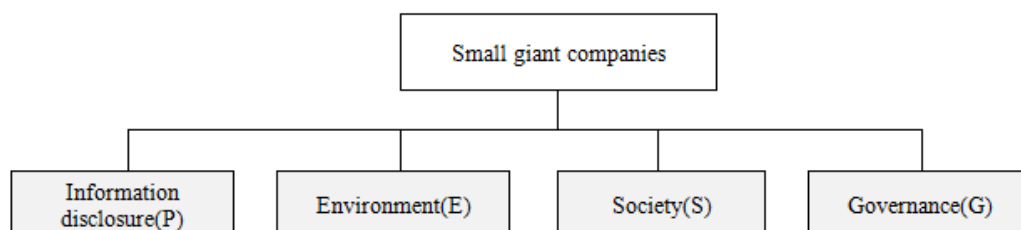


Figure 2. Research Model Phase 1

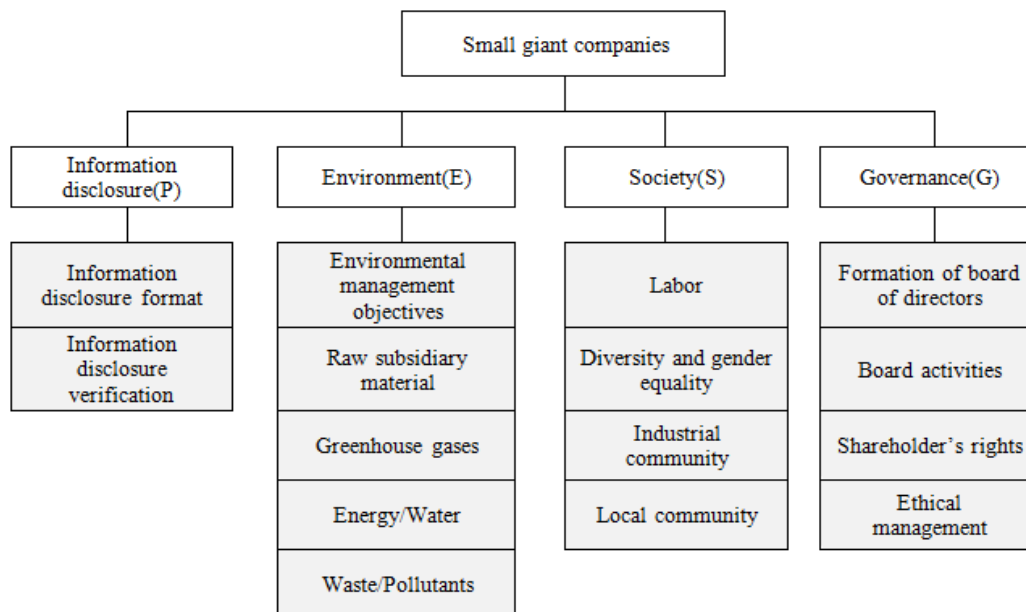


Figure 3. Research Model Phase 2

4. Empirical Analysis

4.1. Demographic Analysis

In this study, from April 15 to April 25, 2003, 20 experts of ESG evaluation institutions were surveyed about the ESG management strategy of small giant companies in the region of Busan, Ulsan, and Gyeongnam Province. The demographic characteristics of the survey subjects are shown in Table 6.

Table 6. Demographic Characteristics of Study Participants

Division		Number of people (%)
Age	30 to less than 40	1(5%)
	40 to less than 50	3(15%)
	50 to less than 60	10 (50%)
	Over sixty	6(30%)
Career	Less than three years	9(45%)
	3 to less than 5 years	2(10%)
	5 to less than 10 years	2(10%)
	10 years to less than 20 years	5(25%)
	More than 20 years	2(10%)
Education	A college degree	10(50%)
	Master	8(40%)
	Doctor	2(10%)

4.2. Consistency Index Evaluation

AHP verifies reliability by checking the Consistency Ratio(CR) to ensure that respondents in the survey are consistent in their assessment. The consistency ratio is the value of the CI (Consistency Index) divided by the RI (Random Index). The value of less than 0.1 is seen to verify the reliability of the questionnaire.

In this study, the reliability of the questionnaire was verified by using less than 0.1 as the standard value, and 20 out of the 30 respondents who participated in the questionnaire had a consistency ratio of less than 0.1 which makes the questionnaire reliable. In addition, the weights for 20 people were added together through the geometric mean to calculate the total weights. What the consistency index shows are as indicated in Table 7.

Table 7. Reliability Analysis Results

Item	λ -max	CI	CR
Small giants	4.01381	0.01060	0.01178
Information disclosure	2.00000	0.00000	0.00000
Environment	5.20727	0.05182	0.04627
Society	4.10655	0.03552	0.03946
Governance structure	4.17272	0.05757	0.06397

4.3. Consistency Index Evaluation

The results of analyzing the relative importance of ESG factors are shown in Table 8. As a result of the analysis, the most important factor was ‘environment (0.465)’ and the least important factor was ‘information disclosure (0.106).’

Table 8. ESG Top Factor Importance Analysis Results

Factor	Importance (%)	Rank
Information disclosure	0.106	4
Environment	0.465	1
Society	0.302	2
Governance structure	0.125	3

The results of analyzing the importance of the sub-factors of information disclosure are shown in Table 9. As a result of the analysis, the most important factor in the sub-factors of information disclosure was the information disclosure verification (0.637), and the lowest rank was the information disclosure format (0.362).

Table 9. Information Disclosure Sub-Factor Importance Analysis Results

Information disclosure	Importance	Order of rank
Information disclosure format	0.362	2
Verification of information disclosure	0.637	1

The results of analyzing the importance of sub-factors of ‘environment’ are shown in Table 10. As a result of the analysis, the most important factor was the ‘environmental management goal (0.520),’ and the lowest was the ‘waste/pollutant (0.074).’

Table 10. Environment Sub-Factor Importance Analysis Results

Environmental factors	Importance	Order of rank
Environmental management goal	0.520	1
Raw subsidiary material	0.107	3
Greenhouse gases	0.220	2
Energy/Water	0.077	4
Waste/Pollutants	0.074	5

The results of analyzing the importance of social sub-factors are shown in Table 11. The most important factor was industrial safety (0.441), and the lowest was diversity and gender equality (0.092).

Table 11. Analysis Results of Importance of Sub-factors of Society

Social factors	Importance	order of rank
Labors	0.154	3
Diversity and Gender Equality	0.092	4
Industrial safety	0.441	1
Local community	0.310	2

As a result of analyzing the importance of the sub-factors of governance, the most important factor was ethical management (0.579) and the lowest was shareholder rights (0.104).

Table 12. Analysis Results of Importance of Sub-factors of Governance

Governance factors	Importance	Order of rank
Formation of board of directors	0.194	2
Activity of board of directors	0.122	3
Shareholder rights	0.104	4
Ethical management	0.579	1

In addition, the comprehensive summary of the overall results of this study is shown in Table 13. As a result of the analysis, the first place in the overall ranking was management goal, the second place was industrial safety, and the third place was greenhouse gas, followed by community, ethical management, and information disclosure.

Table 13. Status of Entire Results

Top-level factor (Important)	Sub-factors			Composite index	
	Factor	Importance	Order of rank	Importance	Order of rank
Information disclosure (0.106)	Information disclosure format	0.362	2	0.039	9
	Information disclosure verification	0.637	1	0.068	6
Environment (0.465)	Environmental management objectives	0.520	1	0.242	1
	Raw subsidiary material	0.107	3	0.050	7
	Greenhouse gases	0.220	2	0.102	3
	Energy/Water	0.077	4	0.036	10
	Waste/Pollutants	0.074	5	0.035	11
Societal (0.302)	Labors	0.154	3	0.047	8
	Diversity and Gender Equality	0.092	4	0.028	12
	Industrial safety	0.441	1	0.134	2
	Local community	0.310	2	0.094	4
Domination Structure (0.125)	Board of directors formation	0.194	2	0.024	13
	Board of directors activity	0.122	3	0.015	14
	Shareholder rights	0.104	4	0.013	15
	Ethical management	0.579	1	0.073	5

4.4. Comparison with Existing Studies

Joo et al. (2022), explored the importance and priorities of each ESG element in a study of venture companies. As a result of the study, the priority of ESG elements appeared in the order of environment (0.479), society (0.294), and governance (0.227). The analysis standard is Korea ESG standard. On the other hand, this study was conducted on small giant companies, using the K-ESG standard table. As a result of the study, environmental factors were considered most important, followed by the factors of society, governance, and information disclosure. The importance of each factor shows consistent results as shown in Table 14.

Table 14. Comparison of Small Giant Companies and Venture Companies

Top-level factor	Small giant companies		Venture firm	
	Importance (%)	Order of rank	Importance (%)	Order of rank
Information disclosure	0.106	4		
Environment	0.465	1	0.479	1
Societal	0.302	2	0.294	2
Governance structure	0.125	3	0.227	3

5. CONCLUSION

This study conducted a survey of experts from ESG evaluation institutions, focusing on small giants in the region of Busan, Ulsan, and Gyeongnam Province, and conducted an importance analysis of ESG factors through AHP techniques. Through this, the importance and priority of ESG factors for small giants in the region of Busan, Ulsan, and Gyeongnam Province were emphasized to provide basic data for establishing ESG management strategies suitable for small giants.

The summary and meaning of the results of the importance analysis of ESG factors of small giants in the region of Busan, Ulsan, and Gyeongnam Province derived from this study are summarized as follows.

First, in the study of Shi & Min, (2023), the importance and priority of venture ESG elements were in the order of environment (0.479), society (0.294), and governance (0.227). The priority of this study on small giants was environment (0.465), followed by society (0.302) and governance (0.125). These results show that both venture companies and small giants have the same ranking of ESG factors in terms of importance. In addition, if global standards for carbon emissions are not met, companies' global competitiveness may be problematic. Compared to other sectors, companies' investment in environmental initiatives is easy to evaluate through quantitative performance indicators and can be expected to improve financial performance. Second, among the sub-factors of society, industrial safety was the most important factor in small giants, and in the case of venture companies, basic rights in the workplace were the most important factor. This is because venture companies need to secure high-quality human resources due to the nature of venture companies that aim for higher growth, and in the case of small giants, industrial accidents are included in the selection criteria of small giant companies. Third, among the sub-factors of governance, ethical management was the most important factor in Jiangsu enterprises, and in the case of venture companies, the protection of shareholders' rights was the most important factor. These results can be said to be the result of venture companies in terms of investors and small giants in terms of evaluation standards.

Based on the meaning of the results of this study, the implications of the study are summarized as follows.

First, environmental factors were found to be the top priority among ESG factors in small giants and venture companies. Therefore, small giants in the region of Busan, Ulsan, and Gyeongnam Province should recognize the environment as a new value that sustainability and long-term growth can be achieved not only by financial performance but also by a healthy environment. To this end, as environmental activities of sustainable management, efforts to reduce carbon emissions and greenhouse gas emissions should be made, and further efforts to implement environmental management should be made through continuous efforts to prepare measures to increase energy efficiency. Second, voluntary safety education for strengthening industrial safety and efforts to improve working environment for industrial safety should be continuously carried out. In addition, if companies build trust from their stakeholder groups by carrying out their work transparently, rationally, and fairly through voluntary community service activities and compliance with social ethical norms, it is considered that small giants in Busan, Ulsan, and Gyeongsang Province will be able to pursue sustainability through ESG activities.

Despite such results above in this study, there is a limitation in the process of this study; it is somewhat unreasonable to generalize the results of the study with the data collected locally in Busan, Ulsan and Gyeongnam Province. The future study is expected to generalize the results of the study through the collection of data in various regions and to derive research results that can have more certainty. In addition, if the results of the study that can reflect the regional characteristics through the comparative regional study are derived, it is considered that the results of the study with higher practical and academic value can be made.

The results of this study are expected to be used as basic data when mall giants in the region of Busan, Ulsan and Gyeongsang Province will determine the importance of K-ESG elements in the ESG management strategy and try to promote sustainability management and strengthen their competitiveness.

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