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Compliance with the Requirements of the Greek Legislation for Reporting on ESG Issues: The Case of the Paper Processing Sector

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Abstract: We examined the extent to which companies in the paper processing sector, operating in printing, packaging, labeling, and paper bagging, comply with the requirements of Greek legislation for reporting information on ESG issues. The overall average compliance rating of the sector, which is 45.86% for the year 2021 and 46.20% for the year 2020, is below 50% (baseline), which means that the sector should improve in reporting on ESG issues. It should also be noted that there has been a deterioration in the average compliance rating between the two years. There is a very high statistically significant correlation between the compliance rating average and the average total assets ($r^2 = 0.897$) and the average number of employees ($r^2 = 0.922$), a high correlation, though not statistically significant, between the compliance rating average and the average results ($r^2 = 0.648$), and a moderate statistically significant correlation between the compliance rating average and the average revenues ($r^2 = 0.570$). There is an obvious positive relationship between holding ISO certificates and external auditor involvement and the average compliance rating of companies; these are both qualitative features favorable to effective governance. The companies that are active in paper bagging and cardboard box (food packaging) usage have also developed a greater environmentally friendly culture, which results in a higher average compliance rating in comparison with the other two activities of the sector. The companies in the region of Attica have a higher compliance rating than the companies in other regions because they operate in an environment that is much more polluted than the rest of Greece, due to its high concentration of people and companies; thus, they have become more sensitive to ESG issues. The companies that have been operating longer have also achieved a higher average compliance rating because younger companies are trying to gain market share and are not devoting their time and resources to ESG issues.

Keywords: sustainability; agency theory; ESG reporting practices; legitimacy theory; management report; stakeholder theory; institutional theory; Greece

JEL Classification: Q56; M10; M14; M40; M48



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1. Introduction

Sustainability is a broader principle that encompasses responsible and ethical business practices in a holistic way. Both sustainability and ESG practices address environmental, social, and governance factors, but it is ESG practices in particular that focus on assessing company performance against these factors. The sustainability of a company is its ability to endure and sustain itself over time. Sustainable development is a company's strategy for achieving sustainability. The report on ESG issues and the benchmarks show the progress of achieving that goal.

The ESG reporting process, which is an integral part of the broader concept of sustainability, will be the subject of this research. More specifically, this research will examine how and since when Greek legislation, which has incorporated all EU directives, has required

Greek companies to report on ESG issues and, finally, whether Greek companies are complying with the requirements of the Greek legislation. In the context of this research, we verified whether companies in the paper processing sector, which are active in printing, packaging, labeling, and paper bagging, have complied with the requirements of Greek legislation for reporting information on ESG issues for the period from 1 January 2020 to 31 December 2021.

Despite the growing interest in ESG reporting practices, relevant studies show that ESG reporting is insufficient or has shown no improvement in not only developing countries (Tauringana 2021) but also in developed countries, such as Sweden, where new corporate laws requiring ESG disclosure have neither increased the quantity nor the quality of ESG reporting (Arvidsson and Dumay 2021). Moreover, it appears that corporate social responsibility (CSR) reporting has a limited impact on firm value (Sampong et al. 2018).

ESG reports provide qualitative information on the social and environmental performance of companies, whereas traditional financial reports only provide quantitative information on financial performance (De Villiers and Sharma 2020). ESG reporting is an important accountability mechanism to stakeholders for company management; it improves the company's image, motivates its workforce, and creates a comparative advantage (Journeault et al. 2021; Orazalin and Mahmood 2018; Cho et al. 2015).

However, ESG reporting practices include an inconsistency (Bradford et al. 2017). ESG reports are usually voluntary and are not governed by mandatory principles or reporting standards (Pinnuck et al. 2021), resulting in a lack of standardization and control. The aforementioned shortcomings, combined with data diversity and complex key performance indicators, increase the need for the assurance, accountability, and holistic oversight of information on ESG issues (Kotsantonis and Serafeim 2019).

The Non-Financial Reporting Directive (NFRD) 2014/95 (EU) sets out the requirements for the disclosure of non-financial and diversity information by certain large companies and groups. This directive, which came into force on 5 December 2014, applies to large public interest entities, banking institutions, and insurance companies with more than 500 employees, and will start requiring their reporting from the year ending 31 December 2024.

In accordance with Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022, as regards ESG reporting by companies, the Sustainability Reporting Directive (CSRD) will enter into force as follows:

- Groups of companies or large companies that meet at least two of the following three criteria must report if they have:
 - Total assets higher than EUR 20,000,000;
 - Revenues higher than EUR 40,000,000;
 - More than 250 employees during the financial year.

The report will start from the year ending 31 December 2025.

- Listed small and medium-sized enterprises are exempted from reporting until 31 December 2028.

The CSRD Directive introduces mandatory ESG reporting requirements with slight variations according to the type and size of different companies. A large number of companies, around 50,000 companies, in Europe will start to submit mandatory ESG reports based on the new EFRAG and ESRS standards for the year ending 31 December 2024 and beyond.

So far, it appears that the EU directives regulating disclosure requirements have not yet improved companies' ESG performance (Arvidsson and Dumay 2021).

In this study, we examined whether the Management Report of Directors' Board to General Assembly contains information on ESG issues. According to law 4548/2018 (article 150) and circular 62784/2017, the Management Report must be prepared annually for the General Meeting of Shareholders and must include a comprehensive analysis of the evolution and performance of the company, related to the size and complexity of its activities. This report should also include financial and non-financial key performance

indicators relevant to the company's activities, with a particular focus on information related to ESG issues. It should be noted that the law 4548/2018 entered into force on 1 January 2019, earlier than the EU directives.

In the context of this study, we examined how a category of companies, namely, companies operating in the printing (lithography), packaging (carton), labeling, and paper bag sectors, comply with the requirements of Greek legislation for ESG reporting. The survey was based on the published financial statements of these companies for the years 2020–2021 in the Register of the General Chamber of Greece (Source: G.E.MI. database¹).

Greece was chosen for the survey because:

- It is a transport hub located on the borders of Europe, Asia, and Africa. The port of Piraeus has managed to increase the number of twenty-foot equivalent units, having by far the highest growth, 287% in accordance with the Annual Financial Report 2021² of the Piraeus Port Authority, among the 10 largest ports from 2007 to 2021 (Source: G.E.MI. database (see note 1)), becoming the first port in the Mediterranean in 2019 and 2020 and the fifth largest port in Europe (Notteboom et al. 2022).
- In 2014 it experienced a terrible economic crisis, the most important crisis in economic history ever experienced by a country in peacetime. On 29 June 2015, capital controls were imposed, and banks were closed. Greece went bankrupt according to the regulations of the International Monetary Fund on 1 July 2015. The unemployment rate was 27.5% for the year 2013, 26.5% for the year 2014 and 25% for the year 2015 (Source: ELSTAT, Hellenic Statistical Office³).
- Greece has been on an upward trend since 2016. Greece exited the International Monetary Fund's support programs on 21 August 2018.

The study "Multiple Framework Contract for the Support to Structural Reforms in EU Member States. Design and Development of Strategies for the Development and Transformation of the Greek Industry" (Source: Ministry of Development and Investments-General Industry Secretariat⁴) that has been prepared by "PricewaterhouseCoopers Business Solutions A.E." (PwC) for the exclusive use of the Ministry of Development and Investments-General Industry Secretariat in February 2023, highlighted the characteristics and dynamics of 15 sectors that will become key subjects of the National Strategy for Industry in Greece. According to the Ministry of Industry, the sector of printing, packaging, labeling, and paper bagging, which is called also the "paper" sector and included in the group of 15 key sectors, is to be restructured. In general, this sector seems to be directly dependent on domestic demand, with no particular outward orientation. The sector's activities seem to be developed around the country's major urban centers, for example, the Attica region accounts for 52.50% of total production, and the region of Central Macedonia for 21.20% of total production. From 2014 onwards, the industry has shown an increase in turnover as well as employment.

We have chosen to review this sector, because:

- It is a heavy industrial and energy-intensive sector (environmental issue).
- It uses a lot of chemical materials, i.e., inks, etc., which may have a significant impact on the aquifer (water) (environmental issue).
- It employs a large number of workers/employees, who usually work in three shifts per day to print daily newspapers. That is why, in the past, the workers in this sector were classified as heavy and unhealthy professionals (social issue).
- The major raw material, i.e., the paper, comes from forests (environmental and social issues).
- It actively participates in the food chain through packaging, i.e., the cardboard box (environmental and social issues).
- The sector must be ready to adapt immediately to technological, mechanical, and product changes, as well as to labor movements (governance issue).
- The sector produces educational and training material (social issue).
- The future restructuring of this sector should include all ESG issues (environmental, social, and governance issues).

The remainder of this article is structured as follows: Section 2 presents the conceptual approaches of the literature review. The literature review describes critical concepts such as sustainability reporting, agency theory, stakeholder theory, institutional theory, and legitimacy theory. The data and research methodology are described in Section 3, the results and discussion of this study are described in Section 4, and the conclusions are described in Section 5.

2. Literature Review

We employed the agency theory, the stakeholder theory, the institutional theory, and the legitimacy theory to justify the need to report information on ESG issues.

The agency theory (Jensen and Meckling 1976) assumes that all people have self-interest, which leads to conflicts between the resource owners and the resource managers. This also creates a significant information asymmetry problem because the resource managers have much more information than the resource owners.

The resource owners, i.e., the shareholders, appoint a board of directors to control and monitor the actions of the resource managers, i.e., the company's management. The board of directors tries to minimize problems by adopting a system of internal audit and control monitoring procedures. One of these monitoring procedures is to check whether the company's management complies with the Greek legislation requirements; therefore, the Management Report to the General Assembly should contain information on ESG issues.

The basis of the agency theory is to maximize shareholder wealth; thus, the managers must disclose to shareholders the annual performance of the company by submitting the Management Report to the Annual General Meeting of Shareholders to approve it.

Stakeholder theory supports the maximization of shareholder wealth because the interests of shareholders and stakeholders are compatible. It is impossible to realize shareholder value without taking care of the stakeholders (Baumfield 2016). The company's management must serve both the internal stakeholders (employees, managers, and owners) and external stakeholders (society, suppliers, government, creditors, shareholders, and customers). There are many definitions and theories of stakeholders that have been developed, but it is always the management of the company that must serve both the shareholders and stakeholders (Murdock 2010), and the needs of stakeholders must be considered first at the beginning of every action (Parmar et al. 2010).

Stakeholder theory is a theory of organizational management and business ethics that considers the multiple groups affected by business entities, such as employees, suppliers, local communities, creditors, and others (Lin 2018). The decisions and actions of the company's management do not only affect the shareholders, who want to increase their wealth, but also the society where the company operates which is significantly affected by its activities. Social and environmental upheavals increase society's interest in information and management practices for ESG issues. Reporting information on ESG issues is an important mechanism for holding management accountable to the society in which the company operates. The company's management can reduce information asymmetry with stakeholders on ESG issues by demonstrating its commitment through ESG information reporting (Zorio et al. 2013).

The stakeholder theory thus succeeds in becoming known not only in business ethics fields; but also, in corporate social responsibility method, for example:

- ISO 26000 (Social responsibility) for businesses and organizations committed to operating in a socially responsible way. The ISO 26000 provides guidance to those who recognize that respect for society and environment is a critical success factor. As well as being the "right thing" to do, application of ISO 26000 is increasingly viewed as a way of assessing an organization's commitment to sustainability and its overall performance (Source: ISO Central Secretariat⁵. International Organization for Standardization).
- GRI (Global Reporting Initiative) is an independent, international organization that helps businesses and other organizations take responsibility for their impacts, by

providing them with the global common language to communicate those impacts (Source: GRI STANDARDS⁶).

Both include stakeholder analysis (Duckworth and Moore 2010).

It is very important that the companies' management informs the stakeholders about their ESG practices because, in this way, they create structures, which include systems, rules, and routines, and define the guidelines for social behavior. This is the basis of institutional theory and shows how the systematic application of institutionalism can provide a deeper understanding of socio-technical transitions (Andrews-Speed 2016).

The basic assumption of legitimacy theory (Suchman 1995) is that the company's actions must be desirable, appropriate, and socially acceptable to a system of values and beliefs. The company's activities should continually conform to the standards set by the society in which it operates. The only way to ensure that these activities are acceptable to the communities concerned is to provide them with adequate, relevant, and meaningful information. If activities do not meet society's expectations, there is a legitimacy gap (Guthrie et al. 2007) that must be filled not only by legislators, who draft the relevant laws and regulations, but also by regulators, who must constantly monitor whether companies are complying with the relevant laws and regulations.

It is important to delineate the legal framework that tries to fill the legitimacy gap and defines the obligations of Greek companies to report on ESG issues. This legal framework consists of Greek corporate laws and mandatory regulations of the United Europe, which, along the way, should be incorporated into Greek legislation. The legal framework that has been used in our research consists of the following laws and regulations.

Greek legislation:

- Law 4548, 13 June 2018, "Reform of the law of joint stock companies".
- Law 4308, 24 November 2014, "Greek Accounting Standards, related regulations, and other provisions".
- Circular 62784/2017 of Ministry of Economy. "Commercial publicity of the annual financial statements, the relevant reports (audit, management of the Board of Directors, non-financial situation, payments to governments) and the Corporate Governance Statement in accordance with the provisions of law 4308/2014. Time and method of converging the regular General Assembly and the Shareholders' Assembly".

United Europe legislation:

- Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC, and Directive 2013/34/EU as regards sustainability reporting by companies.
- Regulation 575/2013 of the European Parliament and of the Council of 26 June 2013, on prudential requirements for credit institutions and investment firms.
- Regulation 596/2014 of the European Parliament and of the Council of 16 April 2014, on market abuse.
- Regulation 909/2014 of the European Parliament and of the Council of 23 July 2014, on improving securities settlements in the European Union and on central securities depositories.
- Directive 2007/36/EC of the European Parliament and of the Council of 11 July 2007 on the exercise of certain rights of shareholders in listed companies.
- Directive 2013/34/EU of the European Parliament and of the Council of 26 June 2013 on the annual financial statements, consolidated financial statements, and related reports of certain types of undertakings, amending Directive 2006/43/EC of the European Parliament and of the Council and repealing Council Directives 78/660/EEC and 83/349/EEC.
- Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34/EU as regards the disclosure of non-financial and diversity information by certain large undertakings and groups.

- Directive (EU) 2017/828 of the European Parliament and of the Council of 17 May 2017 amending Directive 2007/36/EC as regards the encouragement of long-term shareholder engagement.
- Directive (EU) 2017/1132 of the European Parliament and of the Council of 14 June 2017 relating to certain aspects of company law (codification).

3. Data and Methodology

Law 4548/2018 is a significant improvement on the regulatory framework in Greece that seeks to complete the reform of corporate law by replacing the previous Company Law 2190/1920, which was enacted in 1920, i.e., 100 years ago. It has incorporated not only a large number of amendments relating to the previous Law 2190/1920, but also all the European Company Law Directives, such as Regulation (EU) 575/2013, Regulation (EU) 596/2014, and Regulation (EU) 909/2014, Directives 2007/36/EC, 2013/34/EU, 2014/95/EU, 2017/828/EU, and 2017/1132/EU, and the Non-Financial Disclosure Directive (EU) 2014/95 (NFRD). Article 150 of Law 4548/2018, in conjunction with the clarifying circular 62784/2017, determines the content of management reports to the General Assembly and has incorporated the obligations of companies to report ESG issues. Article 179 of the same law has defined the sanctions for the members of the Board of Directors if they do not ensure that the Management Report to the General Assembly contains the required information on ESG issues.

The clarifying circular 62784/2017 defines the content of the Management Reports to the General Assembly and the method of drawing up the financial statements of the companies, according to the Greek Accounting Standards. In fact, the Greek Accounting Standards do not differ from the International Financial Reporting Standards because Law 4308/2014 has already incorporated the European Directive 1606/2002, according to which the application of the International Financial Reporting Standards is mandatory. The Management Report to the General Assembly is part of the companies' financial statements; therefore, it is mandatory to be drawn up, in accordance with Law 4308/2014.

According to the Greek legislation requirements, the Management Report to the General Assembly must contain, at least, the following thirteen ESG topics (parameters), classified into three categories:

Environmental issues (E)

1. Actual and potential impact of the company on the environment.
2. Disclosure of the company's procedures to prevent and control environmental impacts.
3. Development of green products.

Labor issues (S)

1. Diversity and equal opportunity policy (regardless of gender, religion, disability, or other aspects).
2. Respect for workers' rights and freedom of association.
3. Health and safety at work.
4. Training.
5. Promotion.

Governance issues (G)

1. Summary description of the business model.
2. Objectives, values, and key strategies.
3. Management principles and internal audit systems.
4. Performance analysis.
5. Value chain.

All companies in Greece that maintain a double-entry bookkeeping system must publish their financial statements within 20 days, after their approval by the Annual General Meetings of Shareholders, in the Registry of the General Chamber of Greece

(Source: G.E.MI. database (see note 1)), which is a database easily accessible to anyone interested (i.e., stakeholders).

The financial statements that should be published include:

- Balance Sheet
- Statement of Profit and Loss
- Notes
- Management Report to the General Assembly.

We have selected all the companies in the sector that have published their financial statements for the years 2020–2021 in the Registry of the General Chamber of Greece. Law 4548/2018 entered into force on 1 January 2019; therefore, the first financial statements under this law would be those ending 31 December 2019 and should have been published in the Registry of the General Chamber of Greece in November 2020. However, there was a grace period in the application of this law due to the coronavirus pandemic. The law was fully implemented for the fiscal years ending 31 December 2020 and 31 December 2021. The financial statements for the year ended 31 December 2022 must have been published in the Registry of the General Chamber of Greece by November 2023.

As regards the criteria, which have been specified by the Directive on Sustainability Reporting (CSRD) 2022/2464/EU and the Non-Financial Disclosure Directive (NFRD) 2014/95/EU, a company will be obliged to report on ESG issues, or disclose non-financial and diversity information if:

- There is only one company in the sector with a number of employees higher than 250 and no company in the sector with a number of employees higher than 500.
- No company in the sector (and therefore no company in the sample) has revenues higher than EUR 40,000,000.
- There are eight companies in the sector with total assets higher than EUR 20,000,000.

Finally, if there is no company that is obliged to follow directive 2014/95/EU on the disclosure of non-financial and diversity information and there is only one company that simultaneously meets two criteria, i.e., the criterion of the total assets and the criterion of the number of employees, that company is obliged to follow the Directive on Sustainability Reporting (CSRD) 2022/2464/EU. The size of the Greek market does not allow the existence of companies of such a large size.

Thus, this research has two objectives:

- The first objective is to determine whether companies applied the Greek legislation requirements, as far as their ESG reporting is concerned, and to determine to what extent they comply with the requirements of the law. At this stage of the research, the Management Report to the General Assembly has been used as a source.
- The second objective is to identify the correlation between the compliance rating and some characteristics of the companies, which may be quantitative or qualitative. Quantitative characteristics are the total assets, revenues, revenue fluctuations, results, and number of employees, while the qualitative characteristics are the year of establishment, activity, place of establishment, possession of ISO certificates, and statutory audit. The source for the quantitative characteristics was the financial statements, while the source for the qualitative characteristics was the companies' websites and the Registry of the General Chamber of Greece.

In December 2022, we manually retrieved the financial statements and the Management Reports to the General Assembly of the sample companies, which were posted in the database of the Registry of the General Chamber of Greece in PDF format, for the years ending 31 December 2020 and 31 December 2021. Our sample consisted of 129 companies throughout Greece and covered 62.01% of the total market share of printing (lithography) and paper bags, 67.49% of the total market share of packaging (cardboard box), and 80% of the total market share of labeling. We saw a high concentration in the industry.

It should be noted that no company in the sector (and consequently no company in the sample) was listed on the Athens Stock Exchange.

We reviewed the management reports of the samples to ascertain to what extent the Management Report to the General Assembly complies with the minimum requirements of the Greek legislation for reporting information on ESG issues. Each company in the sample was rated according to its compliance regarding its report on the above thirteen ESG topics (parameters), as required by Greek legislation, e.g., if the company's Management Report to the General Assembly covered all the above thirteen topics, the company received a compliance rating 100%; if it reports on three of the thirteen ESG topics, the company received a compliance rating 23.08%. Equal weighting was used for all ESG topics (parameters).

In addition, we extracted the following parameters from the financial statements and the websites of the companies of the sample, in order to examine if these parameters correlate with the compliance rating:

- Total assets;
- Revenues;
- Annual fluctuation in revenues;
- Results;
- Number of employees;
- Establishment year;
- Activity;
- Plant installation;
- Possession of ISO certificates;
- Involvement of an external (statutory) auditor.

We used the inter-quartile range statistical method for analysis (Saunders et al. 2016). The median divides the range of the sample into two ranges and, therefore, divides it into four equal sections. These sections are called quartiles. The lower quartile is the value below which a quarter of these research data values have fallen, while the upper quartile is the value above which a quarter of these research data values have fallen. The remaining half of the research data values thus fell between the lower and the upper quartiles. Using this methodology, we tried to make our sample more homogeneous and not affected by the extreme values.

It is important to check the extent to which the data values are spread around their mean; thus, the mean is more typical. We used the deviation (s) and the standard deviation (sd) to describe the extent of the spread of data values. We used different magnitudes (e.g., amount in euros, number of employees) in order to make a meaningful comparison. We also created two ratios, a ratio of the deviation to the mean and a ratio of the standard deviation to the mean (Saunders et al. 2016).

The difference between the upper and the lower quartiles is the inter-quartile range (Anderson et al. 2014). In order to check the range of the quartiles, we used the lower control limit, which is found by subtracting three times the standard deviation from the average; the upper control limit, which is found by adding three times the standard deviation to the average; the lower value of each quartile; and the higher value of each quartile. In addition, we created a ratio, which is the difference between the upper and the lower value of each quartile, to the average of this quartile (Saunders et al. 2016).

We used the Pearson correlation coefficient (r), which is the most common way of measuring a linear correlation, to assess the relationship between the average of the variables per quartile to the average compliance rating of the quartile (Saunders et al. 2016). The Pearson correlation coefficient (r) has the following scale:

- Very low correlation, when $0 < r < 0.19$.
- Low correlation, when $0.2 < r < 0.39$.
- Moderate correlation, when $0.4 < r < 0.59$.
- High correlation, when $0.6 < r < 0.79$.
- Very high correlation, when $0.8 < r < 1$.

In addition, we used the coefficient of determination, denoted R^2 or r^2 and pronounced "R squared", which is the proportion of the variation in the dependent variable that is

predictable from the independent variable. The coefficient of determination, r^2 , is the square of the Pearson correlation coefficient r (i.e., r^2). Since the regression line does not miss any of the points very much, the r^2 of the regression is relatively high. A number from 0 to 1 reveals how closely the estimated values for the trendline correspond to the actual data; for example, if the coefficient of determination is 0.5, it means that the equation can predict only 50% of the variation (Saunders et al. 2016).

Finally, we calculated the significance of the coefficient. If it has a very low significance value, i.e., $p < 0.05$, it means that the coefficient is unlikely to have occurred by chance alone (Field 2013). If the significance value is higher than 0.05, it means that the coefficient could have occurred by chance alone (Saunders et al. 2016).

4. Results and Discussion

It should be clarified that all our analyses were based on information arising from the Management Reports to the General Assembly of the year ending 31 December 2021, because there were no material differences compared to those of the year 2020. In the 2021 survey, we identified seven companies with higher compliance ratings in comparison with their previous years' compliance rating and six companies with lower compliance ratings in comparison with their previous years' rating.

Having completed the scoring for all the companies in the sample, based on the information they provided on the above thirteen topics as required by Greek legislation and giving equal weight to all topics, we classified the companies according to their compliance rating achievement into four groups:

- The first group includes companies with a compliance rating of up to 25.00%. Their performance is considered unsatisfactory. This group includes 45 companies with an average compliance rating of 6.50%.
- The second group includes companies with a compliance rating from 25.01% to 50.00%. Their performance needs improvement. This group includes 20 companies with an average compliance rating of 41.54%.
- The third group includes companies with a compliance rating from 50.01% to 75.00%. Their performance is considered satisfactory. This group includes 31 companies with an average compliance rating of 61.54%.
- The fourth group includes companies with a compliance rating higher than 75.01%. Their performance is considered very good. This group includes 33 companies with an average compliance rating of 87.41%.

Table 1 presents the four aforementioned groups and correlates their average compliance rating with the variables, average total assets, average turnover, average results (profit-loss), and average number of employees, corresponding to each group. In addition, Table 1 presents the number of companies, as well as the average compliance rating, per ranking group.

The sector's overall average compliance rating, which is 45.86% for the year 2021 and 46.09% for the year 2020, is lower than 50% (baseline); thus, the sector needs improvement in reporting on ESG issues. It should also be noted that there is a deterioration (approximately 5%) in the average compliance rating from 46.09% (2020) to 45.86% (2021).

We observed that in the first two groups, there are 65 companies (50.39% of the sample) with an average compliance rating of 17.28%, which needs improvement. We must focus on the 45 companies of the first group which have a very low average compliance rating (6.5%), and especially on 17 companies (13.18% of the sample) which have a zero compliance rating.

We observed that there is a very high correlation between the average compliance rating with the averages of the total assets, revenues, results, and employees per ranking group (variables). We used the Pearson correlation coefficient (r) to assess this relationship, which is 0.964, 0.960, 0.807, and 0.961 for the variables of the average total assets, the average revenues, the average results, and the average number of employees, respectively. Any increase in the above variables is correlated positively with the increase in the average compliance rating. Using the methodology of the classification of variables per group (or

quartiles), we made the sample more homogeneous and did not let it be affected by the extreme values.

Table 1. Variables Related to Compliance Rating of ESG Issues Reporting.

Groups per Compliance Rating	Number of Companies	Average Compliance Rating	Average Total Assets 2021	Average Turnover 2021	Average Results for 2021. Profit—(Loss)	Average Number of Employees 2021
Group with Compliance Rating up to 25.00%	45	6.50%	2,627,202.43	2,248,700.99	179,908.51	21
Group with Compliance Rating from 25.01% to 50.00%	20	41.54%	5,435,777.60	4,362,368.54	190,981.87	28
Group with Compliance Rating from 50.01% to 75.00%	31	61.54%	6,950,774.67	4,960,729.22	239,694.75	44
Group with Compliance Rating higher than 75.01%	33	87.41%	7,313,446.73	5,390,813.84	653,930.03	48
Total Sample for period ending 31 December 2021	129	45.86%	5,300,445.10	4,031,925.41	317,253.87	35
Pearson correlation coefficient (r) of Variables with Average Compliance Rating			0.964	0.960	0.807	0.961

Source: Register of Greek General Chamber (G.E.MI)—Published Financial Statements and Reports for years 2021 and 2020.

This can be easily seen in Table 2, which shows the fluctuations in the average compliance rating, the average total assets, the average revenues, the average results, and the average number of employees of a group, in comparison with the previous group figures. As can be observed, all fluctuations are positive; this indicates a clear positive correlation between the compliance rating and the variables (total assets, revenues, results, and number of employees).

Table 2. Fluctuations in Variables Related to Compliance Rating of ESG Issues Reporting.

Groups per Compliance Rating	Increase in Average Compliance Rating	Increase in Average Total Assets	Increase in Average Turnover	Increase in Average Results	Increase in Average Number of Employees
Group with Compliance Rating up to 25.00%	-	-	-	-	-
Group with Compliance Rating from 25.01% to 50.00%	539.47%	106.90%	94.00%	6.15%	33.05%
Group with Compliance Rating from 50.01% to 75.00%	48.15%	27.87%	13.72%	25.51%	56.11%
Group with Compliance Rating higher than 75.01%	42.05%	5.22%	8.67%	172.82%	10.58%

Note: Table 2 is related to Table 1.

Table 3 presents the total assets of the companies in the sample, which have been classified into four quartiles, using the inter-quartile range statistical method, and then relates the average total assets to the average compliance rating per quartile.

The total sample population of 129 companies was equally classified into four quartiles. The classification criterion in each quartile was the size of the total assets and was sorted in ascending order of the size of the total assets. This means that the first quartile (called the lower quartile) has the 33 companies in the sample with the lowest total asset size, while the fourth quartile (called the upper quartile) has the 32 companies in the sample with the

highest total asset size. The remaining companies, i.e., 64 companies, fell between the lower and the upper quartiles, i.e., 32 companies in the second quartile and 32 companies in the third quartile, in accordance with the size of their total assets.

Table 3. Correlation of Total Assets with Compliance Rating.

Total Assets Classified per Quartile	Number of Companies	Average Total Assets	Average Compliance Rating
1st (Lower) Quartile of the Sample (classification by ascending order of total assets size)	33	956,809.39	39.16%
2nd Quartile of the Sample (classification by ascending order of total assets size)	32	2,066,813.14	37.50%
3rd Quartile of the Sample (classification by ascending order of total assets size)	32	3,792,570.75	47.84%
4th (Upper) Quartile of the Sample (classification by ascending order of total assets size)	32	14,521,325.75	59.13%
Pearson correlation coefficient (r) of Average Total Assets with Average Compliance Rating		0.947	

Source: Register of Greek General Chamber (G.E.MI)—Published Financial Statements and Reports for years 2021—2020.

There is an apparent positive correlation between the average compliance rating and the total assets, as the higher the total assets, the higher the compliance rating.

Using the Pearson correlation coefficient (r), we observed that there is a very high correlation (0.947) between the average compliance rating with the average total assets per quartile (variable). Any increase in the average total assets will increase the average compliance rating. Using the methodology of the classification of variables per quartiles, we made the sample more homogeneous and did not let it be affected by the extreme values.

The coefficient of determination r^2 (R squared), which is the square of the Pearson correlation coefficient r, has been estimated to be 0.897, which is a very high correlation and means that the equation can predict 89.68% of the variation (Saunders et al. 2016).

There is a very low significance value, $p = 0.0087$, which is lower than $p < 0.05$, and this means that the coefficient is unlikely to have occurred by chance alone (Field 2013).

It is important to check the extent to which the variable “total assets” is spread around the average. Table 4 presents the deviation (s), the standard deviation (sd), the ratio of the deviation to the mean, and the ratio of the standard deviation to the mean to describe the extent of the spread of the total assets’ values.

Table 4. Dispersion Measures of Total Assets Average.

Total Assets Classified per Quartile	Average Total Assets	S	SD	Ratio S/Average	Ratio SD/Average
1st (Lower) Quartile of the Sample (classification by ascending order of total assets size)	956,809.39	317,124.39	55,204.27	33.14%	5.77%
2nd Quartile of the Sample (classification by ascending order of total assets size)	2,066,813.14	402,201.16	71,099.79	19.46%	3.44%
3rd Quartile of the Sample (classification by ascending order of total assets size)	3,792,570.75	817,111.59	144,446.29	21.55%	3.81%
4th (Upper) Quartile of the Sample (classification by ascending order of total assets size)	14,521,325.75	11,012,544.92	1,946,761.30	75.84%	13.41%

Note: Table 4 is related to Table 3.

We observe that the variables in the second and third quartiles are more concentrated around their means (have the lower ratios); this is reasonable because the variables in these two quartiles are more homogeneous, since the variables with extremely low or extremely high values are in the first or the fourth quartile, respectively.

Table 5 presents the lower control limit, the upper control limit, the lower value of each quartile, the higher value of each quartile, and the ratio of each quartile range (the difference between the upper value of the range and the lower value of the range) to the average which are used to check the range of the quartiles.

Table 5. Range Measures of Total Assets Average.

Total Assets Classified per Quartile	Lower Limit	Upper Limit	Range Lower Value	Range Upper Value	Ratio Range/Average
1st (Lower) Quartile of the Sample (classification by ascending order of total assets size)	848,609.03	1,065,009.76	264,796.25	1,447,431.63	1.24
2nd Quartile of the Sample (classification by ascending order of total assets size)	1,927,457.55	2,206,168.73	1,456,985.49	2,728,008.09	0.61
3rd Quartile of the Sample (classification by ascending order of total assets size)	3,509,456.02	4,075,685.47	2,802,247.18	5,878,123.11	0.81
4th (Upper) Quartile of the Sample (classification by ascending order of total assets size)	10,705,673.61	18,336,977.89	5,958,761.11	45,135,923.00	2.70

Note: Table 5 is related to Table 3.

We also observed that the variables in the second and third quartiles are more homogeneous, since the variables with extremely low or extremely high values are in the first or the fourth quartile, respectively. The ratios of the range to the average of the second and third quartile, i.e., 0.61 and 0.81, respectively, present lower values in comparison with the values of the first and the fourth quartile.

Table 6 presents the revenues of the companies of the sample, which have been classified into four groups using the inter-quartile range statistical method, and then relates the revenues average to the average compliance rating per quartile.

Table 6. Correlation of Revenues with Compliance Rating.

Revenues Classified per Quartile	Number of Companies	Average Revenues	Average Compliance Rating
1st (Lower) Quartile of the Sample (classification by ascending order of revenues size)	33	851,539.01	39.39%
2nd Quartile of the Sample (classification by ascending order of revenues size)	32	1,518,309.50	38.46%
3rd Quartile of the Sample (classification by ascending order of revenues size)	32	2,904,201.88	52.16%
4th (Upper) Quartile of the Sample (classification by ascending order of revenues size)	32	10,953,038.31	53.61%
Pearson correlation coefficient (r) of Average Revenues with Average Compliance Rating		0.755	

Source: Register of Greek General Chamber (G.E.MI)—Published Financial Statements and Reports for years 2021—2020.

Using the same process as above, the total sample population of 129 companies was equally classified into four quartiles, in accordance with the criterion of the size of the revenues.

Using the Pearson correlation coefficient (r), we observe that there is a high correlation (0.755) of the average compliance rating with the revenues' average per quartile (variable). This means that any increase in the average revenues will increase the average compliance rating.

The coefficient of determination r^2 was estimated to be 0.570, which is a moderate correlation and means that the equation can predict 57.00% of the variation (Saunders et al. 2016).

There is a very low significance value, $p = 0.0352$, which is lower than $p < 0.05$; this means that the coefficient is unlikely to have occurred by chance alone (Field 2013).

Table 7 presents the extent to which the variable “revenues” was spread around the average.

Table 7. Dispersion Measures of Revenues Average.

Revenues Classified per Quartile	Average Revenues	S	SD	Ratio S/Average	Ratio SD/Average
1st (Lower) Quartile of the Sample (classification by ascending order of revenues size)	851,539.01	191,395.57	33,317.69	22.48%	3.91%
2nd Quartile of the Sample (classification by ascending order of revenues size)	1,518,309.50	264,839.53	46,817.46	17.44%	3.08%
3rd Quartile of the Sample (classification by ascending order of revenues size)	2,904,201.88	655,390.50	115,857.77	22.57%	3.99%
4th (Upper) Quartile of the Sample (classification by ascending order of revenues size)	10,953,038.31	9,161,463.37	1,619,533.22	83.64%	14.79%

Note: Table 7 is related to Table 6.

We observed that the variables in the first, second, and third quartiles are more concentrated around their mean because the variables with extremely high values were classified in the fourth quartile; for example, we have 16 companies (12.4% of the sample) with total revenues EUR 264,280,233.27 (50.81% of the sample) for the period ending 31 December 2021.

Table 8 presents the range of the quartiles which were based on the size of the revenues.

Table 8. Range Measures of Revenues Average.

Revenues Classified per Quartile	Lower Control Limit	Upper Control Limit	Range Lower Value	Range Upper Value	Ratio Range/Average
1st (Lower) Quartile of the Sample (classification by ascending order of revenues size)	786,236.33	916,841.69	399,260.12	1,146,974.61	0.88
2nd Quartile of the Sample (classification by ascending order of revenues size)	1,426,547.28	1,610,071.71	1,162,464.61	1,989,594.90	0.54
3rd Quartile of the Sample (classification by ascending order of revenues size)	2,677,120.66	3,131,283.11	2,006,670.45	4,202,634.00	0.76
4th (Upper) Quartile of the Sample (classification by ascending order of revenues size)	7,778,753.20	14,127,323.42	4,323,200.82	38,074,299.00	3.08

Note: Table 8 is related to Table 6.

We observed that the variables in the first, second, and third quartiles are more homogeneous, while we classified the aforementioned variables with extremely high values in the fourth quartile. The ratio of the range to the average of the fourth quartile presents the highest value, in comparison with the ratios of the other three quartiles.

Table 9 presents the revenue fluctuations of the companies in the sample, which have been classified into four quartiles, and then relates the revenue fluctuation average to the average compliance rating per quartile.

Table 9. Correlation of Revenues Fluctuations with Compliance Rating.

Revenues Fluctuations Classified per Quartile	Number of Companies	Average Revenues Fluctuations	Average Compliance Rating
1st (Lower) Quartile of the Sample (classification by ascending order of revenues fluctuations size)	33	−476,558.50	45.67%
2nd Quartile of the Sample (classification by ascending order of revenues fluctuations size)	32	139,796.90	41.11%
3rd Quartile of the Sample (classification by ascending order of revenues fluctuations size)	32	384,695.60	48.80%
4th (Upper) Quartile of the Sample (classification by ascending order of revenues fluctuations size)	32	1,598,045.90	46.63%
Pearson correlation coefficient (r) of Average Revenues Fluctuations with Average Compliance Rating		0.272	

Source: Register of Greek General Chamber (G.E.MI)—Published Financial Statements and Reports for years 2021—2020.

Using the same process as above, the total sample population of 129 companies was equally classified into four quartiles based on the criterion of the size of the revenues' fluctuations.

Using the Pearson correlation coefficient (r), we observed that there was a low correlation (0.272) between the average compliance rating and the average revenue fluctuation average per quartile (variable).

Table 10 presents the extent to which the variable “revenues fluctuations” was spread around the average.

Table 10. Dispersion Measures of Revenues Fluctuations Average.

Revenues Fluctuations Classified per Quartile	Average Revenues Fluctuations	S	SD	Ratio S/Average	Ratio SD/Average
1st (Lower) Quartile of the Sample (classification by ascending order of revenues fluctuations size)	−476,558.50	2,058,729.40	358,378.79	−432.00%	−75.20%
2nd Quartile of the Sample (classification by ascending order of revenues fluctuations size)	139,796.90	47,926.83	8472.35	34.28%	6.06%
3rd Quartile of the Sample (classification by ascending order of revenues fluctuations size)	384,695.60	107,090.42	18,931.09	27.84%	4.92%
4th (Upper) Quartile of the Sample (classification by ascending order of revenues fluctuations size)	1,598,045.90	1,268,416.32	224,226.45	79.37%	14.03%

Note: Table 10 is related to Table 9.

We observed that the variables in the second and third quartiles are more concentrated around their mean. This is reasonable because the variables in these two quartiles are more homogeneous since the variables with extremely low or extremely high values were classified in the first or fourth quartile, respectively; for example, the company VM presented a material decrease in revenues, amounting to EUR 11,921,000 for the period ending 31 December 2021. This decrease in revenues represents 2.3% of the total revenues of the sample.

Table 11 presents the range of the quartiles which were based on the size of the revenues' fluctuations.

Table 11. Range Measures of Revenues Fluctuations Average.

Revenues Fluctuations Classified per Quartile	Lower Control Limit	Upper Control Limit	Range Lower Value	Range Upper Value	Ratio Range/Average
1st (Lower) Quartile of the Sample (classification by ascending order of revenues fluctuations size)	−1,178,980.92	225,863.93	−11,921,000.00	32,462.10	−25.08
2nd Quartile of the Sample (classification by ascending order of revenues fluctuations size)	123,191.10	156,402.70	46,313.22	225,393.53	1.28
3rd Quartile of the Sample (classification by ascending order of revenues fluctuations size)	347,590.66	421,800.54	232,864.89	590,926.57	0.93
4th (Upper) Quartile of the Sample (classification by ascending order of revenues fluctuations size)	1,158,562.06	2,037,529.73	601,091.06	6,480,941.82	3.68

Note: Table 11 is related to Table 9.

We also observed that the variables in the second and third quartiles were more homogeneous, in contrast with the variables with extremely low values which are in the first quartile.

Table 12 presents the employee numbers of the companies in the sample, which have been classified into four quartiles, and then relates the average number of employees to the average compliance rating per quartile.

Table 12. Correlation of Employees Number with Compliance Rating.

Employees Number Classified per Quartile	Number of Companies	Average Number of Employees	Average Compliance Rating
1st (Lower) Quartile of the Sample (classification by ascending order of employees' number)	33	9	38.00%
2nd Quartile of the Sample (classification by ascending order of employees' number)	32	17	37.02%
3rd Quartile of the Sample (classification by ascending order of employees' number)	32	31	48.56%
4th (Upper) Quartile of the Sample (classification by ascending order of employees' number)	32	82	60.10%
Pearson correlation coefficient (r) of Employees Number Average with Average Compliance Rating		0.960	

Source: Register of Greek General Chamber (G.E.MI)—Published Financial Statements and Reports for years 2021—2020.

The total sample population of 129 companies was equally classified into four quartiles based on the criterion of the number of employees.

Using the Pearson correlation coefficient (r), we observed that there was a very high correlation (0.960) between the average compliance rating and the average number of employees per quartile (variable). It is clear that any increase in the number of employees will increase the average compliance rating.

The coefficient of determination r^2 was estimated to be 0.922, which is a very high correlation and means that the equation can predict 92.16% of the variation (Saunders et al. 2016).

There is a very low significance value, $p = 0.0029$, which is lower than $p < 0.05$, and this means that the coefficient is unlikely to have occurred by chance alone (Field 2013).

Table 13 presents the extent to which the variable “number of employees” was spread around the average.

Table 13. Dispersion Measures of Employees’ Number Average.

Employees’ Number Classified per Quartile	Average Employees’ Number	S	SD	Ratio S/Average	Ratio SD/Average
1st (Lower) Quartile of the Sample (classification by ascending order of employees’ number)	9	2.77	0.48	30.81%	5.36%
2nd Quartile of the Sample (classification by ascending order of employees’ number)	17	3.05	0.54	17.63%	3.12%
3rd Quartile of the Sample (classification by ascending order of employees’ number)	31	4.38	0.77	14.26%	2.52%
4th (Upper) Quartile of the Sample (classification by ascending order of employees’ number)	82	58.43	10.33	71.29%	12.60%

Note: Table 13 is related to Table 12.

We observed that the variables in the second and third quartiles were more concentrated around their mean.

Table 14 presents the range of the quartiles which were based on the number of employees.

Table 14. Range Measures of Employees Number Average.

Employees’ Number Classified per Quartile	Lower Control Limit	Upper Control Limit	Range Lower Value	Range Upper Value	Ratio Range/Average
1st (Lower) Quartile of the Sample (classification by ascending order of employees’ number)	8.05	9.95	3	13	1.11
2nd Quartile of the Sample (classification by ascending order of employees’ number)	16.25	18.37	13	22	0.52
3rd Quartile of the Sample (classification by ascending order of employees’ number)	29.20	32.24	23	39	0.52
4th (Upper) Quartile of the Sample (classification by ascending order of employees’ number)	61.72	102.21	40	292	3.07

Note: Table 14 is related to Table 12.

We also observed that the variables in the second and third quartiles were more homogeneous. The ratios of the range to the average (%) of the third and fourth quartiles presented lower values in comparison with the values of the first and the fourth quartiles.

Table 15 presents the results of the companies, which were classified into four groups using the statistical method of inter-quartile range, and then relates the average results to the average compliance rating per quartile.

Table 15. Correlation of Results with Compliance Rating.

Results Classified per Quartile	Number of Companies	Average Results	Average Compliance Rating
1st (Lower) Quartile of the Sample (classification by ascending order of results size)	33	−33,696.25	41.03%
2nd Quartile of the Sample (classification by ascending order of results size)	32	63,063.82	48.32%
3rd Quartile of the Sample (classification by ascending order of results size)	32	178,779.80	40.14%
4th (Upper) Quartile of the Sample (classification by ascending order of results size)	32	1,109,184.23	54.09%
Pearson correlation coefficient (r) of Average Results with Average Compliance Rating		0.805	

Source: Register of Greek General Chamber (G.E.MI)—Published Financial Statements and Reports for years 2021—2020.

The total sample population of 129 companies was equally classified into four quartiles based on the criterion of the companies' results.

Using the Pearson correlation coefficient (r), we observed that there was a very high correlation (0.805) between the average compliance rating and the average results per quartile.

The coefficient of determination r^2 was estimated to be 0.648, which is a high correlation and means that the equation can predict 64.80% of the variation (Saunders et al. 2016).

There was a significance value of $p = 0.0817$, which is higher than $p < 0.05$, meaning that the coefficient could have occurred by chance alone (Field 2013).

Table 16 presents the extent to which the variable “results” is spread around the average.

Table 16. Dispersion Measures of Results Average.

Results Classified per Quartile	Average Results	S	SD	Ratio S/Average	Ratio SD/Average
1st (Lower) Quartile of the Sample (classification by ascending order of results size)	−33,696.25	222,090.13	38,660.93	−659.09%	−114.73%
2nd Quartile of the Sample (classification by ascending order of results size)	63,063.82	24,032.81	4248.44	38.11%	6.74%
3rd Quartile of the Sample (classification by ascending order of results size)	178,779.80	51,018.77	9018.93	28.54%	5.04%
4th (Upper) Quartile of the Sample (classification by ascending order of results size)	1,109,184.23	1,570,509.43	277,629.47	141.59%	25.03%

Note: Table 16 is related to Table 15.

We observed that the variables in the second and third quartiles were more concentrated around their mean. This is reasonable because the variables in these two quartiles are more homogeneous because the variables with extremely low or extremely high values were classified into the first or fourth quartile, respectively; for example, a company presented a material loss amounting to EUR 1,228,862.45 for the period ending 31 December 2021.

Table 17 presents the range of the quartiles which were based on the size of their results.

Table 17. Range Measures of Results Average.

Results Classified per Quartile	Lower Control Limit	Upper Control Limit	Range Lower Value	Range Upper Value	Ratio Range/Average
1st (Lower) Quartile of the Sample (classification by ascending order of results size)	−109,471.67	42,079.17	−1,228,862.45	30,731.73	−37.38
2nd Quartile of the Sample (classification by ascending order of results size)	54,736.87	71,390.76	32,405.68	107,744.95	1.19
3rd Quartile of the Sample (classification by ascending order of results size)	161,102.70	196,456.90	110,685.95	269,487.35	0.89
4th (Upper) Quartile of the Sample (classification by ascending order of results size)	565,030.48	1,653,337.99	280,695.98	8,809,367.96	7.69

Note: Table 17 is related to Table 15.

We also observed that the variables in the second and third quartiles are more homogeneous.

Table 18 presents the relationship of the ISO certificates, which is a qualitative feature of the governance, with the average compliance rating. We noted that the companies that do not have any ISO certificate have a lower average compliance rating than the companies that hold ISO certificates.

Table 18. Correlation of ISO Certifications with Compliance Rating.

Number of ISO Certifications per Group	Number of Companies	Average Compliance Rating
No ISO Certification	54	40.18%
Holders of ISO Certification	75	49.95%

Source: Website of the companies.

Table 19 presents the relationship of an auditor's involvement, which is another qualitative feature of the governance, with the average compliance rating. We noted that the companies that are audited have a higher compliance rating than the ones that are not. There is an obvious positive correlation between the compliance rating and an auditor's involvement.

Table 19. Correlation of Auditor with Compliance Rating.

Statutory Audit	Number of Companies	Average Compliance Rating
Statutory auditor involvement	27	65.24%
None Statutory Audit	102	40.72%

Source: Register of Greek General Chamber (G.E.MI)—Published Financial Statements and Reports for year 2021.

Table 20 presents the relationship of the activity with the average compliance rating.

Table 20. Relation of Activity with Compliance Rating.

Activity	Number of Companies	Average Compliance Rating
Carton Manufacture	25	51.38%
Labels	25	40.62%
Lithography	61	44.14%
Paper Bagging	18	51.28%

Source: Register of Greek General Chamber (G.E.MI)—Published Financial Statements and Reports for years 2021—2020.

We observed that the activities of paper bagging and cardboard boxes (food packaging), which are going to replace plastic bags and plastic food boxes, are the greenest in this sector. The management of these companies seems to have developed, to a greater extent, an environmentally friendly culture, which results in a higher average compliance rating in comparison with the companies that are operating in the other two activities.

Table 21 presents the relationship between the plant installation with the average compliance rating.

Table 21. Relation of Plant Installation with Compliance Rating.

Plant Installation	Number of Companies	Average Compliance Rating
Region of Attika	86	50.27%
Region of North Greece	22	32.52%
At another region	21	41.76%

Source: Register of Greek General Chamber (G.E.MI)—Published Financial Statements and Reports for years 2021–2020.

We observed that the companies that are active in Attika have higher compliance ratings than the companies that are active in the rest of Greece, especially in northern Greece, where the lowest compliance rating was found.

In Greece, there is a strong concentration of the population (50% of the total population), companies, and public services in the capital Athens, which is a part of the Attika region. Due to the high concentration of people and companies, the environment is much more polluted than the rest of Greece; therefore, both the people and companies that operate in such a difficult environment seem to be more sensitive to ESG issues.

Also, the supervisory authorities, which are public services, are concentrated in Athens, so more audits and inspections are carried out in the Attika region than in the rest of Greece.

Table 22 presents the age (years) of the companies, which were also classified into four quartiles, and then relates the average of the companies' ages to the average compliance rating, per quartile.

Table 22. Correlation of Companies Ages with Compliance Rating.

Companies Ages Classified per Quartile	Number of Companies	Average Companies Age	Average Compliance Rating
1st (Younger) Quartile of the Sample (classification by ascending order of companies age)	33	8.67	39.16%
2nd Quartile of the Sample (classification by ascending order of companies age)	32	17.31	38.70%
3rd Quartile of the Sample (classification by ascending order of companies age)	32	25.44	56.25%
4th (Older) Quartile of the Sample (classification by ascending order of companies age)	32	40.28	49.52%
Pearson correlation coefficient (r) of Companies Age Average with Average Compliance Rating		0.656	

Source: Register of Greek General Chamber (G.E.MI)—Published Financial Statements and Reports for years 2021–2020.

The total sample population of 129 companies was equally classified into four quartiles, based on the criterion of the companies' ages. This means that the first quartile (called the lower quartile) has the 33 youngest companies in the sample, while the fourth quartile (called the upper quartile) has the 32 oldest companies in the sample.

Using the Pearson correlation coefficient (r), we observed that there was a high correlation (0.656) of the average compliance rating with the companies' average age for the companies per quartile (variable). There was a significance value of $p = 0.1170$, which is higher than $p < 0.05$, which means that the coefficient could have occurred by chance alone

(Field 2013). We observed that the companies that have been operating for more years have achieved a higher compliance rating because the younger companies are presumably seeking to gain market share and not spending their time and resources on ESG issues.

Table 23 presents the extent to which the variable “age of the company” is spread around the average.

Table 23. Dispersion Measures of Companies Age Average.

Companies Age Classified per Quartile	Average Companies Age	S	SD	Ratio S/Average	Ratio SD/Average
1st (Younger) Quartile of the Sample (classification by ascending order of companies age)	9	2.81	0.49	32.47%	5.65%
2nd Quartile of the Sample (classification by ascending order of companies age)	17	1.86	0.33	10.73%	1.90%
3rd Quartile of the Sample (classification by ascending order of companies age)	25	2.42	0.43	9.52%	1.68%
4th (Older) Quartile of the Sample (classification by ascending order of companies age)	40	8.61	1.52	21.39%	3.78%

Note: Table 23 is related to Table 22.

We observed that the variables in the second and third quartiles are more concentrated around their mean.

Table 24 presents the range of each quartile to the average which was based on the age of the companies.

Table 24. Range Measures of Companies Age Average.

Companies Age Classified per Quartile	Lower Control Limit	Upper Control Limit	Range Lower Value	RangeUpper Value	Ratio Range/Average
1st (Younger) Quartile of the Sample (classification by ascending order of companies age)	7.71	9.63	3	13	1.15
2nd Quartile of the Sample (classification by ascending order of companies age)	16.67	17.96	14	21	0.40
3rd Quartile of the Sample (classification by ascending order of companies age)	24.60	26.28	21	29	0.31
4th (Older) Quartile of the Sample (classification by ascending order of companies age)	37.30	43.27	29	58	0.72

Note: Table 24 is related to Table 22.

We also observed that the variables in the second and third quartiles are more homogeneous.

5. Conclusions

The first objective of this study was to establish whether companies apply Greek legislation, in terms of their ESG reporting, and to determine to what extent they have complied with the requirements of Greek legislation. We examined the extent to which a sample of 129 companies, which are active in printing (lithography), packaging (cardboard box), labeling, and paper bagging, comply with the requirements of Greek legislation for reporting information on ESG issues during the period from 2020 to 2021 and we found that:

- First and foremost, the sector's overall average compliance rating, which is 45.86% for the year 2021 and 46.09% for the year 2020, is lower than the baseline of 50%. This means that the sector needs improvement in reporting on ESG issues.
- Second, there has been a deterioration, of approximately 5%, in the average compliance rating from 46.09% for the year 2020 to 45.86% for the year 2021.

It is noteworthy that there are 65 companies, i.e., 50.39% of the sample, with a compliance rating below the baseline of 50%, and that the average compliance rating of this group of 65 companies is particularly low at 17.28%. We should also point out that among the 65 companies, there are 17 companies (i.e., 13.18% of the sample) that have a zero compliance rating.

Considering the above results, combined with the fact that Greek legislation does not require complex reports and information on ESG issues, benchmarks, and KPIs, we verify the poor results in ESG issues reporting, as well as the previous research on this topic (Taurigana 2021; Arvidsson and Dumay 2021).

The second objective was to identify the correlation between the degree of compliance and some characteristics of the companies which may be quantitative or qualitative.

Using the Pearson correlation coefficient (r), we observed that there is a very high correlation between the compliance rating average and the average total assets ($r = 0.947$), the average number of employees ($r = 0.960$), and the average results ($r = 0.805$), a high correlation between the compliance rating average and the average revenues ($r = 0.755$), and a low correlation between the compliance rating and fluctuations in revenues ($r = 0.272$).

Using the coefficient of determination r^2 , we observed that there is a very high, statistically significant correlation between the compliance rating average with the average total assets ($r^2 = 0.897$) and the average number of employees ($r^2 = 0.922$), a high correlation, though not statistically significant, between the compliance rating average and the average results ($r^2 = 0.648$), and a moderate statistically significant correlation between the compliance rating average and the average revenues ($r^2 = 0.570$).

We concluded that the larger a company is, the more likely it is to comply with ESG reporting requirements; company size is an indicator of effective governance.

There is an obvious positive relationship between the ISO certificates and external auditor involvement with the average compliance rating of the companies. The possession of ISO certificates and external auditor involvement are both qualitative features that indicate effective governance.

The above findings confirm the agency theory (Jensen and Meckling 1976) because large companies with effective governance, which has been ensured by ISO certificates or mandatory audits, have a higher compliance score. Based on agency theory, shareholders appoint a board of directors to control and monitor the actions of the company's management and to solve the important problem of information asymmetry. The board of directors then adopts an effective governance system, including an internal audit system, mandatory audit by external auditors, holding ISO certificates, etc.

We observed that the companies that are operating in paper bagging and cardboard boxes (food packaging) and trying to replace plastic bags and plastic food boxes have developed a greater environmentally friendly culture, which results in a higher average compliance rating, in comparison with companies which are operating in the other two activities.

We found that companies operating in the region of Attica have higher compliance ratings than the companies that are active in the rest of Greece. This finding can be explained as follows:

- Due to the high concentration of people and companies in Attica, the environment is much more polluted than the rest of Greece; therefore, both people and companies operating in such a difficult environment are more sensitive to ESG issues.
- The supervisory authorities are concentrated in Athens, so more audits and inspections take place in the region of Attica than in the rest of Greece.

Regarding the theory of legitimacy (Suchman 1995), this study showed that the legislators, using Law 4548/2018 and Circular 62784/2017, asked companies to report on thirteen ESG issues. So, they consider that they have filled the gap in legitimacy, but the poor reporting results prove that this is not enough because regulators need to check whether companies are implementing the requirements of the law to fill the gaps (Guthrie et al. 2007). An example is that the highest compliance scores are from companies located in Attica because the supervisory authorities are concentrated in Athens, the capital of Greece.

Additionally, we noted that the companies that have been operating longer have achieved a higher compliance rating because younger companies are trying to gain market share and are not devoting their time and resources to ESG issues. There is a high correlation (Pearson correlation coefficient $r = 0.656$) between the compliance rating average with the companies' average age per quartile.

Like any other study, this study also has limitations. Because we only focused on the companies of a particular industry, extending the research to other sectors is not only desirable but necessary.

In addition, we retrieved data for a short-term period of two years (2020 and 2021). We could enrich the study with the data (management reports and financial statements) for the year ending 31 December 2022, which were posted in the Registry of the General Chamber of Greece (G.E.MI.) in November 2023.

Finally, it would be very useful to find the results of ESG issues that refer to another sector and compare them with the results of the sector that we examined in this research.

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Notes

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- ³ ELSTAT Hellenic Statistical Office (no date). Tables of Unemployment Rate per Month. Available online: <https://www.statistics.gr> (accessed on 1 September 2023).
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