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Environmental Information Transparency—Evidence from Romanian Companies

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Abstract: The purpose of this paper is to analyse disclosure of environmental information (DEI) for a set of 100 companies listed at the Bucharest Stock Exchange (BSE) and identify possible correlations between this and the evolution of some relevant economic and financial measures of companies' activities. For these purposes we have calculated an index of environmental information disclosure and we employed a system dynamic panel data estimation model and panel corrected standard errors for sampled companies for the 2013–2017 period. The results we have obtained show that sampled companies have a low degree of environmental information disclosure, as the highest registered score was of 15 out of a maximum of 29 points, with an average of merely 6.37 points. Regarding the possible correlations, the tests performed have shown that entity size, expressed by the number of employees, is the factor which positively influences environmental information's disclosure. Results also evidence that performance determines the quantity of information the firm provides to external users, as opposed to maturity/age. Our study is the first approaching companies from Bucharest Stock Exchange with data for 5 years using a mixed approach (DEI–index and regressions) and we think the results obtained are useful for managers, general public and investors, considering that size and performance greatly influence companies' environmental awareness.

Keywords: environmental information; transparency; sustainability report; economic and financial measures

1. Introduction

The ever more diverse requests coming from stakeholders' groups and the current economic context impose an increased transparency regarding accounting and financial information and the risks economic entities currently face. The pressure originating from users of accounting and financial information requires a more attentive and responsible reflection upon the realization and presentation of annual and sustainability reports.

Reporting sustainable development, along with the information regarding economic entities' financial situation and performances has become a necessity, appreciated by both investors and business partners. Implicitly, the demand for information concerning companies' environmental impact has grown in the last years.

In Romania, according to Order no. 175/2005 [1] and Order no. 680/2016 [2], economic agents are compelled to consider the integration of environmental protection aspects into their companies' strategy. They have to create a department dealing with environmental protection's aspects, under the general manager's direct coordination and supervision.

In such circumstances, the topic of environmental protection seems to connect the private and the public sector. On the one hand, companies offer environmental information to public authorities; however, they can be made public only after a formal request made by any person [3].

Starting from 2017, Romanian companies with more than 500 employees should now elaborate sustainability reports each year to show the positive impact of their environmental actions upon the sustainable development of the community in which they are located. Reporting their environmental actions and concerns can improve a company's image, increase its outer visibility and reputation.

On the other hand, the state itself is concerned with the way it manages to protect the environment. Environmental protection is perceived as a public service for which, in most countries, local administrations are the ones directly responsible for providing it in a high quality, cost-efficient and sustainable manner. Moreover, environmental protection, as well as other public services, such as public order, social protection, modern sewage, water distribution and treatment, public transportation and so forth, should be provided efficiently and sustainably in terms of timely delivery, costs and quality. That is especially true in countries like Romania where bureaucracy, social disparities, corruption and economic development are still a matter of great concern [4]. The necessity of protecting the environment involves the allocation of significant amounts of money both for the state and its subnational levels and for the companies which comply with specific legislation. Nevertheless, unlike in the private sector, where efficiency aspects prevail, in the public sector, the level of expenditures, with environmental protection expenses included, increases steadily [5].

We have used in this paper DEI (Disclosure of Environmental Information) to reveal the extent of the environmental information a company offers to interested third parties. DEI supplies information about companies' environmental activities and reflects their transparency and responsibility toward the environment. Based on the DEI index we have conceived, we calculated a score for each sampled company and for each year of the analysed period (this information is also presented in Section 3—Data, Hypothesis and Methodology).

Our current paper follows two objectives: (1) identifying transparency in disseminating environmental information by BSE listed companies; (2) identifying the correlation between environmental information and some relevant economic and financial measures.

This study contributes to existent literature in several different ways. Firstly, DEI helps companies recognize their business decisions' environmental impact and we follow that for 100 of BSE listed companies.

Secondly, we devise a DEI index collecting all the necessary data from published financial information, from sustainability's and administrators' reports.

Thirdly, we made use of information from 100 BSE listed companies, whose activities bear a significant influence upon the environment. To evaluate transparency and disclosure regarding environmental aspects we have extracted information from annual reports, sustainability reports, administrators' reports and the websites of the sampled companies, whereas for analysing the dependency between environmental information and economic and financial measures we have used a system dynamic panel data estimation model, considering a GMM two-step procedure and robust standard errors.

Fourthly, we consider size, age, performance and indebtedness degree of these firms as factors likely to explain companies' environmental information disclosure. Results seem to indicate that both size and performance are important to explain DEI, as opposed to previous authors' results and by opposition age seems to be irrelevant. Moreover, indebtedness effects over DEI are not clear yet.

Finally, we made use of different econometric specifications to provide robustness to overall conclusions using simultaneously common panel fixed effects and random effects models, panel corrected standard errors models and system dynamic panel data models (GMM and robust standard errors specifications used). As such, this research analyses DEI on behalf of good practices promoted by the BSE listed companies and it is further associated with other variables from the firms' annual reports disclosures.

The paper is structured as follows. Section 2 addresses current stages of research, followed by the data, hypothesis and methodology (Section 3), which presents the DEI index construction process and all the econometric models used. These sections are followed by the research results Section 4 and finally we present conclusions, limitations and directions for future research in Section 5.

2. Literature Review

Research regarding environment information disclosed by the companies is found quite often lately. Similar studies, from various countries, have investigated the relation between environmental performances and environmental information disclosed by the companies [6–8], the relation between environmental information and financial performances [9–11], the relation between company size and environmental information disclosed [12–14], the relation between environmental information disclosed and different financial and non-financial factors [14–28].

At a national level, Ienciu et al. [29] investigated the quality of environmental information displayed by the Bucharest Stock Exchange listed companies, performing a comparative analysis between Romania's and Hungary's environmental reporting and concluded that most of the environmental information supplied by Romanian companies is incomplete and irrelevant. Another study by Ienciu [30] analysed the relationship between environmental reporting and corporate governance for the Bucharest Stock Exchange listed companies. The relationship between environmental reporting and corporate governance was also analysed by other researchers [31–37].

The impact of shareholders' structure and of administration board's structure upon environmental information was studied by References [38–40].

Currently, all entities grant more attention to the environment due to the pressure exerted by different parties such as clients, investors and financial institutions, competition, global policies and ecological associations (Martin Houldin, EMAG Limited). This theory regarding external pressure exerted upon companies is found in reference literature as stakeholders' theory [41].

The stakeholders' theory stands out as one of the most used theories to explain companies' intention to disclose environmental information. The pressure sources influence in a higher or lower measure the activity of entity's management, through the information they have to present to financial and accounting reports' users. The number of "ethical" investors is growing and they want to invest in companies which respect the environment, leading to an increased demand for information regarding the management of company environment [42].

The new accounting branch—environmental accounting—was approached by Caraiani et al. [43] in their book *Green Accounting—Initiatives and Strategies for Sustainable Development*. As well, the International Federation of Accountants has published a brochure presenting the main information of interest for investors regarding social, environmental and corporate governance aspects.

In a recent study, Junquera and Barba [44] studied the connection between environmental pro-activity and company performances for 142 Spanish wineries. The authors found that environmental proactivity was instrumental in obtaining both cost-based and differentiation-based competitive advantages, however it did not significantly influence financial performance of sampled companies.

Also, in a study published in 2018, Radhouane et al. [45] analysed the potential benefits for shareholders and customers in cases in which companies report more about their environmental activities for the 120 largest publicly traded companies in France for the 2007–2011 period. One of their most important findings was that an increase in the level of environmental reporting is valuable in terms of customer-related performance (i.e., sales growth and profit margin) as well as in terms of market value. This was more visible for companies operating in customer proximity industries.

Chelli, Durocherz and Fortin [46] analysed normativity in environmental reporting for Canada and France in the environmental reporting practices of a sample via institutional legitimacy. The three researchers found that the French parliamentary regime was apparently more successful than the Canadian stock exchange regulation in triggering environmental reporting and that the GRI reporting standards combined with local regimes generated more environmental disclosures.

Moseñe et al. [47] performed a content analysis of sustainability reports for the 2005–2009 period for seven main Spanish wind energy companies. The analysis allowed them to realize a longitudinal comparison of compliance levels with Global Reporting Initiative indicators of sustainability. The authors learned that the disclosures were minimal, lacking effectiveness and were quite unreliable.

Hossain et al. [48] have approached corporate social and environmental reporting (CSER) practices and motivations in Bangladesh. They found that *community investment and development* and *governance codes and policies* categories received the highest amount of disclosure, while the least disclosed was the *workplace/human rights* category.

Radhouane et al. [49] investigated whether customer-related performance affects the value relevance of voluntary environmental reporting, using a sample of French listed firms for the 2001–2011 period. Their results have showed that a higher level of environmental disclosure is valued negatively by shareholders for firms operating in environmentally sensitive industries.

3. Data, Hypothesis and Methodology

3.1. Transparency in Communicating and Disseminating Environmental Information

A first objective of the research was to evaluate the transparency and responsibility of BSE listed companies towards environmental aspects.

In this direction we have achieved a content analysis of annual reports, sustainability reports, administrators' reports or websites of sampled companies. The sample includes 100 companies listed at BSE, considering the ease of access to annual financial situations, declarations and other types of reports, made public on the websites of the respective companies or on Bucharest Stock Exchange's site.

The data covers the 2013–2017 period, with selected companies operating in areas which have a major impact upon the environment, with activities and products prone to cause damage to the environment.

The 100 companies, making up the sample, were selected from different sectors of activity, as well as according to the availability of the financial and non-financial data for the 2013–2017 period.

The sample was created considering three criteria:

- The sector of activity (mainly the industries/sectors with the highest pollution risks);
- Companies listed at Bucharest Stock Exchange;
- Companies active during the 2013–2017 period and which have published financial and non-financial data and information.

We have selected 20 of the most polluting sectors from Romania, with 15 companies from metallic construction industry, 11 companies from mineral non-metallic industry, 11 companies from the machinery and equipment production industry, 10 companies from the metallurgic industry, 9 companies producing electric equipment, 9 companies producing other transportation means, 6 companies producing rubber and plastic products, 5 companies from the pharmaceutical industry, 4 companies from land and piping transport, 3 companies producing electronic products, 2 companies from oil extraction and processing and one company from each of the following industries: coal products; production and supply of gas and electricity; paper products; roads and highway construction; beverage; food processing and manufacturing; and one from clothing manufacturing.

The 20 sectors include 123 companies listed with Bucharest Stock Exchange, which published financial and non-financial information throughout the entire 2013–2017 period, therefore our sample of 100 companies represents 81% of the total number of companies.

For each of the 100 selected companies we have used an index to measure the degree of disclosing environment information. The index of disclosing environment information is actually a centralizing list which allows the assigning of a score to each and every analysed company, according to the environment information it presents in its annual reports. These results are expressed and centralized as follows (see the Appendix A for more details):

- 0: the entity does not present any environment information;
- 0.5: the entity provides only general information (only in a descriptive manner) regarding environmental aspects included in the index;
- 1: the entity offers detailed information regarding environment information, both descriptive and quantitative information.

The selected environment information is presented in Table A1 in the Appendix A. Part of the information included in the index are also found in the Ministry Order no. 175/2005 regarding the procedure of data reporting for environment protection activities of Romanian industrial companies. The index of disclosing environmental information includes a set of indicators of environmental performance, which are aligned to relevant international standards, especially ISO 14031, as well as to GRI (Global Reporting Initiative). Where relevant, the environmental performance measures were adjusted to reflect specific requirements of Romanian legislation or to underline certain environmental aspects which have a specific importance in the Romanian context. Also, the list realized by the authors was adapted to Romania's economic and legislative situation, according to the list used in the Clarkson et al. study's [6]. The fore-mentioned list was elaborated by Clarkson in cooperation with an expert from the environmental reporting field and it is based on the guidelines offered by GRI (Global Reporting Initiative) to facilitate the understanding and communicating company's environmental impact. The GRI index was also used in some recent studies [50–53].

The list processed by the authors includes 29 questions, with a maximum possible score of 29 a company can obtain. For each of the 100 companies we calculated a score based on the data extracted from annual reports, websites or sustainability reports. The scores obtained reflect the degree of disclosing environmental information, transparency and responsibility of the companies regarding environmental aspects. The maximum score was obtained by the company which was the most involved in environmental activities and made most efforts to reduce its impact upon the environment (the most responsible company toward environmental aspects).

The sampled companies obtained a maximum of 15 points of the 29 possible. The average of 6.37 points confirms the opinion that analysed companies have a low degree of environmental disclosure.

Figure 1 shows the scores regarding the disclosure of environmental information obtained by the sampled 100 companies, for the 2013–2017 period.

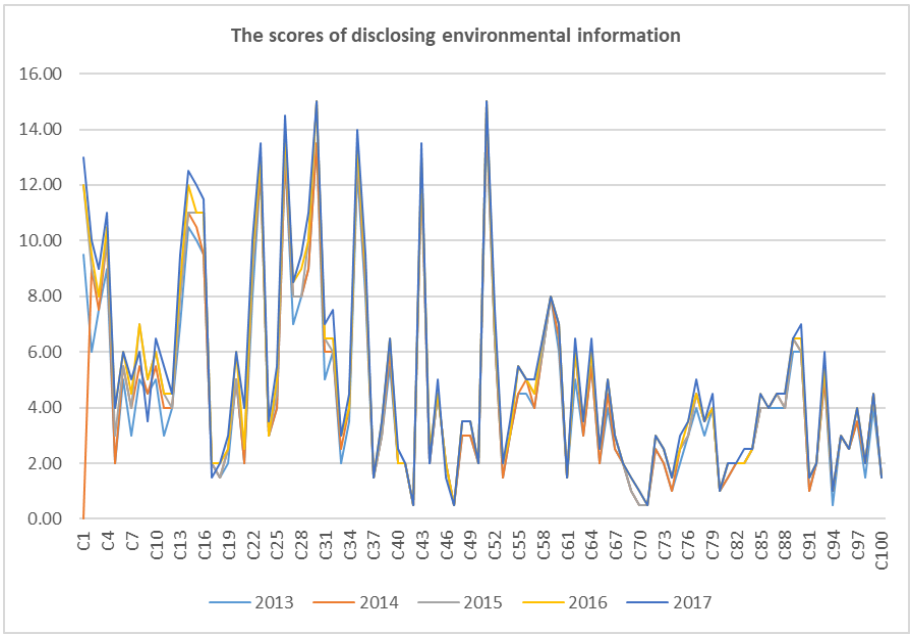

Figure 1. The scores of disclosing environmental information.

In Figure 1 we can observe a higher score in 2017 compared with previous years, in disclosing the environmental information. Of the 100 companies, 24 have over 500 employees, therefore should present sustainability reports. The annual reports do not offer too many details regarding environmental aspects, the companies merely presenting general aspects regarding environmental authorizations and certificates; environmental policies and objectives; conformity with current legislation; existence or lack of litigations; data about CO2, water, energy consumptions and waste management. The sustainability reports and websites offer more details, alas many companies do not present such reports.

In what follows we have realized an individual analysis of each point/category from the index of disclosing environmental information for our sample.

3.1.1. Company Management Structure

In Romania, according to Order 175/2005 [1], the companies have the obligation to set a department with attributions for environmental protection, under the direct coordination of the manager/general manager. However, only 65% of the evaluated companies have published information regarding the existence of this department. The companies focused mainly on getting the 14001 ISO certificate, with 86% of the evaluated companies (86 out of 100 companies) claiming they have this environmental certificate. ISO 14001 confirms the fact that the company complies with all the requirements regarding the environment management system. The results obtained suggest that BSE listed companies are interested and involved in tackling the environmental problems. Voluntary implementation and certification of the environmental management system according to the international standard ISO 14001 reflects a company's preoccupation for more than merely legislation compliance, that is, for a continuous improvement of environment performance.

The companies seemed less interested in offering information about the existence of environmental protection departments, as well as about environmental demands imposed to their suppliers and clients. This result can be explained as those elements are actually absent from companies' structure. Also, the companies do not offer information about their accounting department or about green accounting. Green accounting can be a complement to traditional accounting and it is meant to account and present data about raw materials, water and energy consumption; costs of protecting and restoring natural environment; gains from the policy led by the company to protect the natural environment and so forth. The economic entities which implement environmental accounting can benefit from a series of advantages such as a stricter control of environmental expenditures, knowledge of their environmental performance, obtaining more sustainable long-term revenues, improving their company image and so forth. The information from environmental accounting and the analysis of costs-benefits relation help managers to set their decisions regarding the environment and its protection, to take measures to prevent environmental damages and to evaluate environmental costs.

3.1.2. Credibility

We have noticed that 92% of evaluated companies, respectively 92 out 100 companies have presented information about their environmental certificates. This result was expected, as Romanian legislation imposes to companies with a major environmental impact to own such certificates. 44% of the companies declared that they adopted a set of rules by which they evaluate, report and improve the effect their activities or products have upon the environment.

The companies have declared in their publish reports that they implemented and applied procedures for a periodic identification and evaluation of environmental aspects. The companies showed a lower interest for disclosing information regarding internal environmental audit, probably as they were looking to keep dormant the non-conformities found by this audit.

3.1.3. Environmental Performance Measures

The companies which offered details about this aspect were the ones which made and presented sustainability reports. Their sustainability reports presented information regarding the investments

made to reduce water consumption; the consumption of electric energy, gas and water; quantity of waste generated/recycled; quantity of CO2 emissions. Overall, 47% of the evaluated companies offered information about CO2 emissions in their annual reports and/or on the company site, yet most of the times this information was presented only in a descriptive manner, mentioning that CO2 emissions are within the limits stipulated by the law. From the total 100 companies, 29 declared they ensure in part or fully their energy consumption from renewable sources (either directly, from their own facilities or by acquiring energy from the producers which use renewable sources). These companies can be considered as environmentally responsible. Reducing energy consumption represented a major objective of their environmental policy for 83% of analysed entities. In 2017, the analysed companies reported an improvement of the quality of their used water released into the public sewage network and showed an interest in reducing water losses in their supply pipes or in sanitary installations.

We have found little information concerning soil contamination, yet 67% of analysed companies declared they have adopted waste management policies. The companies also named responsible persons with waste management and reporting. The companies supplied data regarding the actions they have undertaken to reduce energy, water and gas consumptions.

3.1.4. Environmental Assets, Debt and Expenditures

Another aspect which was almost neglected by the companies refers to investments in tangible and intangible assets connected with environmental protection activity. These investments are not presented in a distinct manner in their financial situations, with entities supplying only their overall value of such investments (19% of the companies published information regarding the total value of their environmental investments).

The environmental expenditures are also not presented in a detailed manner (the companies published only total value of their environmental expenditures). The companies mentioned that environmental expenditures are connected with implementing their environmental management programs and aligned to existing environmental legal requirements.

Of the 100 analysed companies, 61% offered information regarding litigations and fines received for non-compliance with environmental norms, mentioning that they did not receive warnings, sanctions or fines connected with environmental legislation. This statistic provides confidence that selected companies' approach in environment protection area was efficient, that they implemented successful organizing and technological measures and their personnel was aware and responsible.

Environmental provisions are not presented distinctly, probably included in *other provisions* category. Still, we do not find inside annual reports data regarding their value and the situation/context they were created for. Environmental commitments provisions should be created when obtaining environmental authorization is contingent upon presenting a reducing pollution investment plan by the economic entity. These investments are programmed over several fiscal years and they involve setting installations and equipment to prevent the generation of environment damaging factors. The expenditures which accommodate the provisions are not deductible for fiscal purposes.

From one company's annual report we have extracted the following statement: "As of December 31-st of 2017, the Group does not register debt connected with anticipated expenditures regarding environmental aspects. The Group does not have significant environmental expenditures." This statement may suggest the fact that economic entities do not grant too much importance to financial aspects connected with protecting the environment and that financial information regarding the environment is not considered relevant.

3.1.5. Vision and Strategy

The communication with the external environment is made via annual reports, whereas the internal one is done using the regular environmental training. The entities had a positive reaction towards disclosing their environmental mission and objectives, with 81% of analysed companies

presenting this kind of information. A company's environmental policy or strategy is the formal way in which it shows commitment towards environmental protection and sustainability.

In total, 96% of sampled companies declared they have an environmental policy or vision complying with international environmental protection standards. In general, the companies have declared and defined their environmental objectives inside their annual or sustainability reports and part of them have also declared the degree of attaining these objectives. Only 32% of the companies declared they have fully attained their established environmental objectives.

Among the measures stated in the environmental action plans we have found proper waste management and minimizing the quantity of waste generated; the reduction of energy consumption; pollution prevention; the periodical monitoring of environmental factors; the modernization and updating of installations; an increased use of renewable energy sources; implementing measures for improving the energy efficiency of company buildings; making sure the entire personnel knows and respects environmental legislation; preventing major accidents connected with hazardous substances.

3.1.6. Entity's Environmental Profile

Most information was presented as statements regarding entities' compliance with different environmental standards and laws. Compliance with the requirements of environmental protection laws represents the minimum objective for any company aspiring to *green company* status, according to the 2016 Catalogue of Green Business Index. In total, 89% of the companies have declared in their annual reports they have fulfilled their legal commitments towards the environment. We have also analysed companies which do not want to supply public information about the impact of their activities upon the environment, by claiming they have reported those data to local public authorities.

3.1.7. Environment Initiatives

The sampled companies have granted little attention to their environment initiatives. Less than 30% of the companies have offered information about professional training of their employees regarding environmental aspects.

The companies which offered this information claimed they support continuous professional development of their employees via periodical preparing, qualification and certification programs. In one sustainability report we have found the statement: "The periodical trainings regarding environmental protection, respectively the permanent actions of raising employees and other stakeholders' awareness have had the designed effect and as such we will continue the efforts to uphold the growing trend of environmental performance and the clean statistics regarding environment incidents."

The same low incidence is found in what regards involvement in community environmental projects. Very few entities have supplied information regarding this aspect. The involvement in community environmental projects can be a company's sign/measure of assuming responsibility concerning its environmental impact.

As a conclusion, we can state that companies' transparency regarding the environmental aspects/information is quite low. The highest score obtained by a company from the selected ones is 15, out of a maximum of 29 points.

The companies declare they grant significant importance to environmental protection, assuming their commitment to integrate the best practices, yet they are reluctant to supply public information/details regarding environmental aspects. As a rule, companies offer details regarding environmental information to local authorities (where they have a legal obligation to do so) whereas in their public reports they disclose only information which provides them a positive image.

The results suggest companies are interested first of all to comply with legal requirements and also to reach some performances in environmental management. The least disclosed information in company reports refer to financial aspects (environmental assets, debt and expenditures), with less than 20% of the companies offering such data. We can state that sampled companies do not

consider relevant to provide such information for external users. In 12 of the 100 reports we found the following statement: "All issues regarding environmental aspects (monitoring environmental factors, management of hazardous substances, management of waste and wrapping and other environmental requirements) are done according to existing legislation."

3.2. Identifying the Correlation between Environmental Information and Economic and Financial Factors

The lack of environmental information and implicitly of environmental problems could generate significant risks for the business environment, such as reputation risk, discontinuing the activity, lack of resources and high costs, supply chain risks, financing risk (identified in a study by ACCA in partnership with KPMG in 2011). These risks can be reflected via economic and financial factors which can influence the degree of disclosing environmental information.

Another objective of our paper is identifying the financial and non-financial factors which influence environmental information disclosure in case of BSE listed economic entities. To achieve this purpose, we have identified the following research lines: Determining the elements which possibly influence the disclosure of environmental information; The calculus of scores based on the environmental information disclosing index (from Table 1); Determining the connection between environmental information and economic and financial factors, using a multiple linear regression.

3.2.1. Determining the Elements Which Possibly Influence Environmental Information Disclosure

Most studies before now have shown that the most used economic and financial and non-financial factors which favour the disclosure of environmental information are entity size, financial performance, indebtedness degree, type of industry, type of property (state or private), age of the entity, existence of external relations and so on. In our analysis we decide to work with the factors size of the entity, financial performance, indebtedness degree and age of the entity.

Entity Size

Previous studies from different countries, such as Greece [14], Thailand [23], Holland [25], Turkey [26] and China [27] claim that entity size has a significant impact upon the degree of environmental information's disclosing. It is expected that bigger entities will offer more environmental connected information, considering the pressure originating from information users [43], as well as in an attempt to improve their public image. Also, it is expected that this information would be published on company website [54].

Also, Riahi–Belkaoui [55] and Cormier et al. [19] have shown that there is a correlation between company size (expressed via sales turnover) and the level of environmental reporting. The studies which analysed this dependency have used various measures to express entity size, such as total assets, number of employees or sales turnover. In the present article we use TA (log of total assets), ST (log of sales turnover) and also ANE (the average number of employees) as different proxies for the size of the entity, expecting a positive relationship between size and disclosure of environmental protection.

Company Performance

Previous studies have shown mixed results concerning the influence of profitability upon environmental information reporting. Some researchers have determined a positive relation between the two variables [9,24]. However, the studies which did not find a significant relation between profitability and environmental information reporting are more numerous [14,26,28,56,57]. Although these results are contradictory, we can assume that a profitable entity has enough resources to invest in its environmental policy, respectively in improving company's environmental results and its image, mainly for investors. As such, entity's performance is an important factor in determining the environmental information to be disclosed. Many studies have used return on equity (ROE) and/or return on assets (ROA) to express company performance [58–66]. We have used ROE (net profit/equity) to accomplish our goal.

Indebtedness Degree

As total assets are also financed from other sources rather than equity holders, it is expected that the entity will report, alongside compulsory financial information, other voluntary information, both financial and non-financial. These are meant to increase transparency and confidence in the company. Also, in this case the studies realized showed contradictory results.

Clarkson et al. [6] concluded that indebtedness degree (DD) has a significant influence upon the degree of environmental information disclosure, as creditors put pressure on the company to report environment information and analyse possible risks. Thus, it is expected a positive relationship between the two variables.

Nevertheless, the studies of Echave and Bhati [56] and Murcia and Santos [24] found no association between the two variables.

The Age of the Entity

Age is another characteristic of the entity that is less used in the research, yet it can influence the degree of environmental information reporting. A company which has been for a long time on the market is perceived as stable and aspects such as environmental policy and objectives are part of company's daily activity, as essential components of its environmental image and strategy. Hence, we expect a positive relation between the two variables. Akbas [26] showed that age in the case of Turkey's Stock Exchange positively influences the degree of environmental information disclosure, yet the influence is not significant. The age of the entity is computed as the log of the difference between the year of the company constitution and the current year of analysis.

3.2.2. The Calculus of Scores Based on the Environmental Information Disclosing Index

The environmental information list (the environmental information disclosing index) is a summarizing situation, based upon which, the analysed company obtains a score according to the environmental information published in its annual reports, sustainability reports or websites. The list is presented at the Appendix A. The DEI (disclosure of environmental information) index built will be the dependent variable used within estimations.

3.3. Determining the Connection between Environmental Information and Economic and Financial Factors, Using Regressions

Our study analyses the relationship between the degree of disclosing environmental information and factors such as the entity's age, financial performance, indebtedness degree and size. In our study, total assets, sales turnover and average number of employees (the size criteria specified/established by Romanian accounting regulation) express entity size.

Considering previous research and studies and our sample's characteristics, as described in Section 3.1, we have established and tested the following four hypotheses using different econometric specifications.

Hypothesis 1 (H1). *Entity's size does not significantly influence disclosing of environmental information.*

Hypothesis 2 (H2). *Entity's financial performance does not significantly influence disclosing of environmental information.*

Hypothesis 3 (H3). *Indebtedness degree does not significantly influence disclosing of environmental information.*

Hypothesis 4 (H4). *Entity's age does not significantly influence disclosing of environmental information.*

To test these hypotheses, the dependency relation is expressed using a multiple linear regression, expressed by Equation (1):

$$DEI = a + b_1 \cdot TA + b_2 \cdot ST + b_3 \cdot ANE + b_4 \cdot ROE + b_5 \cdot DD + b_6 \cdot AG + \epsilon \quad (1)$$

where DEI represents the dependent variable, respectively disclosed environmental information, whereas the individual independent variables used to test our hypotheses are represented by TA (total assets), *ST* (sales turnover), ANE (average number of employees), ROE (return on equity), DD (indebtedness degree), AG (age of entity). In equation (1) ϵ stands for the standard error, a represents a constant and b_i are the regression coefficients ($i = 1 \ldots 6$). For all variables we have used their natural logarithms, except for ROE and DD, provided these are ratios.

We have chosen total assets (taken from the balance sheet) as they represent past investments made by the company and the productive capacity of the company, sales turnover (taken from the profit & loss account) representing the effective capacity of company assets of generating useful effects, average number of employees (as the most important productive factor), return on equity (calculated as net profit/equity owner), as one of most important measures of company performances, indebtedness degree (the ratio between total debt and total assets, all collected from the balance sheet) since it shows an important feature of company financial strategy and age (since it depicts continuity, sustainability in some way, investors' trust and other relevant features of a company's activity).

Panel data analysis is the most suitable to be applied provided the nature of our sample data of Romanian firms. Besides allowing to control for variables which cannot be observed or measured, it accounts for individual heterogeneity. The first models to be used into our analysis are those of random (RE), between (BE) and fixed effects (FE).

By applying FE, we are assuming that something within the firm can influence or bias the predictor (independent) variables, which we need to control. Or else, that there is correlation between firm's error term and predictor variables. Therefore, FE removes the effect of those time-invariant characteristics, allowing to assess the net effect of the predictors upon disclosed environmental information (DEI). Another important assumption in FE is that error terms are not correlated among firms. If not, the FE model would not be suitable, inferences could be wrong and we need to model this relationship probably using RE. In estimations we have added the option robust to control for possible heteroscedasticity. Unlike the FE model, in the RE model the variation across entities is assumed random and uncorrelated with the independent variables. If we believe that differences across firms have some influence over DEI, as we do, then we should use RE. The Hausman model is used to select which model is more suitable.

The BE model captures the cross-sectional nature of the data and as such allows us to estimate effects between RE and FE. Stata's RE estimator is a weighted average of FE and of BE coefficients, provided FE uses only the time series information and BE uses the cross-sectional information.

For robustness check we have also used the linear regression with panel-corrected standard errors (PCSE) which assumes that the disturbances are by default heteroskedastic and contemporaneously correlated across panels. We also use the system dynamic panel data estimation model in order to include lagged effects of dependent variables using both a GMM two-step standard errors procedure and a robust standard errors assumption. Moreover, we consider the high correlation values identified in Table 1 among independent variables and present estimation results which account for their inclusion individually to reduce multicollinearity issues and provide additional robustness check.

4. Research Results

To analyse the relationship between the variables we have used the correlation matrix. The highest mean values are displayed by total assets and sales turnover, justifying also why these present the highest standard deviation. Both return on equity and disclosed environmental information present negative minimum values, yet DEI has the lowest maximum value. As a rule, correlation coefficients

with values between 0 and 0.3 express a weak link, with values between 0.3 and 0.7 a moderate link, whereas values between 0.7 and 1 express a strong bond. The correlation coefficients as well as descriptive statistics are presented in Table 1 below.

Table 1. Descriptive statistics and correlation matrix.

	Mean	Std. Dev.	Min	Max	DEI	TA	ST	ANE	ROE	DD	AG
DEI	1.310	0.776	−0.693	2.708	1						
TA	18.030	1.912	13.455	24.489	0.781 ***	1					
ST	17.320	2.218	11.639	23.618	0.850 ***	0.893 ***	1				
ANE	5.101	1.742	0.000	9.853	0.749 ***	0.694 ***	0.804 ***	1			
ROE	0.080	0.805	−4.259	10.131	0.019	0.002	0.026	0.025	1		
DD	0.413	0.478	0.000	5.009	0.157 ***	0.065	0.188 ***	0.115 ***	0.119 ***	1	
AG	3.248	0.231	1.386	3.912	−0.025	0.010	−0.043	−0.068	−0.176 ***	0.012	1

Notes: All variables except ROE and DD are in natural logarithms. DEI stands for disclosed environmental information; TA—total assets; ST—Sales Turnover; ANE—average number of employees; ROE—return on equity; DD—indebtedness degree; AG—age of entity. *, **, *** represent statistically significant at 10%, 5% and 1%, respectively.

According to Table 1 we can notice a strong correlation between total assets and sales turnover, between average number of employees and total assets, as well as between average number of employees and sales turnover, all statistically significant. These correlations are actually expected, since these measures are used in Romania for expressing entity size. There is a strong and expected correlation between disclosed environmental information and number of employees, as in Romania companies with a large number of employees are the ones which publish sustainability reports and implicitly supply more environmental information. Also, previous studies support the fact that there is a positive relationship between entity size and disclosure of environmental information [12–14,19,23,25–27,43,54,55,67–69].

The association between disclosed environmental information and indebtedness degree, respectively age of entity, is very weak.

The variance inflation factor (VIF) quantifies the severity of multicollinearity. If the VIF value is VIF < 0.2 or VIF > 10, then multicollinearity is problematic [70]. To infer about VIF we have run a simple OLS regression and then applied the VIF test. Results Indicate VIF values for ST = 8.04; TA = 5.37; ANE = 2.88; DD = 1.12; AG = 1.05; ROE = 1.05; and a mean VIF of 3.25. Therefore, we should not worry with multicollinearity issues within our sample, turning multicollinearity among independent variables.

Table 2 below presents the fixed, random and the between effects estimation results, as well as Hausman test' results, suggesting that fixed effects' model is the most suitable one. All models present global statistical significance provided that appropriate tests indicate all model's coefficients are different from zero. Both the fixed and random effects models indicate total assets have a clear positive and significant influence over disclosure of environmental information, suggesting that the bigger the firm the higher environmental information's disclosing. This means that size positively influences this disclosure, probably due to company's need to keep a good image for existing and potential investors. The same occurs with indebtedness degree, whose coefficient is positive and significant. It means that the higher the indebtedness degree, the higher the probability of a company disclosing environmental information, as it needs to display a favourable image for financial creditors. This in turn contradicts the assumed hypothesis that indebtedness does not influence disclosed environmental information (DEI).

The average number of employees, which also accounts for company size, with statistical significance in both the FE and the BE effects model, displays negative and positive coefficients respectively. Therefore, our first hypothesis is not confirmed, since results seem to indicate that size influences DEI. Provided that TA is also a measure of firm size, results are contradictory in the FE model, indicating that results might be biased depending upon considered measure of size. However, we can state that size determines the quantity of information it provides to external users.

Table 2. Panel data simple model estimations.

	Fixed Effects (FE)		Random Effects (RE)		Between Effects (BE)	
Dependent: DEI	**Coefficient**	***t*-Test**	**Coefficient**	***t*-Test**	**Coefficient**	***t*-Test**
TA	0.0834	2.70 ***	0.1634	6.75 ***	0.0568	1.20
ST	0.0123	0.56	0.1005	5.01 ***	0.1226	2.09 **
ANE	−0.0146	−2.20 **	−0.0074	−1.05	0.2113	3.80 ***
ROE	−0.0005	−0.07	−0.0033	−0.43	−0.0063	−0.05
DD	0.0777	3.61 ***	0.1142	5.54 ***	0.0169	0.15
AG	−0.1079	−2.55 **	−0.0988	−2.23 **	0.1103	0.53
Constant	−0.0130	−0.02	−3.0644	−8.74 ***	−3.2808	−4.11 ***
Hausman chi(2)	68.88 ***					
F-test	4.39 ***				54.94 ***	
Wald chi(2)	241.17 ***					
R^2 within	0.0627		0.0400		0.0089	
R^2 between	0.6123		0.7034		0.7800	
R^2 overall	0.5953		0.6890		0.7145	
Number of obs.	500					

Notes: All variables except ROE and DD are in natural logarithms. DEI stands for disclosed environmental information; TA—total assets; ST—Sales Turnover; ANE—average number of employees; ROE—return on equity; DD—indebtedness degree; AG—age of entity. *, **, *** represent statistically significant at 10%, 5% and 1%, respectively.

Age connected results indicate a negative and significant impact over DEI and therefore company maturity influences DEI and our no. 4 hypothesis is also not verified. The remaining explanatory variables of the models, namely ST and ROE, are not statistically significant under the FE model. For all models, ROE is not statistically significant, leading us to accept the null hypothesis thereby concluding that financial performance does not influence DEI. The results of our study resonate with other previous studies which do not find a significant relation between financial profitability and environmental information reporting [13,25,27,49,50].

However, considering the RE and BE results, they contradict our no. 2 hypothesis, provided that ST coefficient is positive and significant.

Moving one step further we present the results obtained for the panel corrected standard errors (*PCSE*) model in Table 3 and the results achieved using the system dynamic panel data estimation model considering *GMM* two-step procedure and robust standard errors in Table 4.

Table 3. Panel corrected standard errors (PCSE) model results.

	Model 1		Model 2		Model 3		Model 4	
Dependent: DEI	**Coeff.**	**Z-Test**	**Coeff.**	**Z-Test**	**Coeff.**	**Z-Test**	**Coeff.**	**Z-Test**
TA	0.0547	4.38 ***	0.2055	7.53 ***	0.0433	3.30 ***	0.3143	85.95 ***
ST	0.1992	7.57 ***			0.2639	18.76 ***		
ANE	0.0876	2.36 **	0.1731	3.97 ***				
ROE	−0.0012	−0.07	−0.0022	−0.11	−0.0008	−0.04	−0.0017	−0.09
DD	0.0302	0.94	0.1292	4.94 ***	0.0135	0.43	0.1740	7.87 ***
AG	0.0355	0.81	−0.0182	−0.35	0.0191	0.52	−0.1159	−4.62 ***
Constant	−3.7003	−16.19 ***	−3.2715	−12.66 ***	−4.1093	−27.75 ***	−4.0518	−29.21 ***
Wald chi(2)	9522.69 ***		6217.47		12152.62		8937.73	
R2	0.7388		0.6985		0.7254		0.6219	
Number of obs.	500							

Notes: All variables except ROE and DD are in natural logarithms. DEI stands for disclosed environmental information; TA—total assets; ST—Sales Turnover; ANE—average number of employees; ROE—return on equity; DD—indebtedness degree; AG—age of entity. *, **, *** represent statistically significant at 10%, 5% and 1%, respectively. Model 1: Including all independent variables; Model 2: Excluding ST provided we have 3 size measures; Model 3: Excluding ANE provided we have 3 size measures; Model 4: Excluding ST and ANE provided we have 3 size measures.

Results from Table 3 reinforce the idea that DEI is positively and statistically influenced by size, as expressed by total assets, average number of employees, as well as by sales turnover. As sales turnover is also a measure of financial performance, results seem to indicate that financial performance does influence disclosure of environmental information. We cannot state the same for ROE, since there is no evidence of statistical significance for its coefficient value. Therefore, this also contradicts our no. 2 hypothesis. Both size and performance positively increase the probability of company's DEI, as does indebtedness. However, DD is sensitive to inclusion of other explanatory variables in the model. As such, the inclusion of accounting variables in the model used to explain DEI is sensitive to the selection of variables used.

The overall significance of models presented in Table 3 is high, meaning that all these variables are important to explain DEI. However, there might exist other relevant variables besides the accounting ones to explain DEI. Environmental protection is a complex issue and the decision of disclosing environmental information is not always rational and as such it might not only depend on quantitative data, as the ones obtained from the accounting. We should also evidence that company age or maturity seems to have a negative impact over DEI. The result was only significant when we removed the variables of sales turnover and average number of employees from the analysis. As such there is evidence that age in fact influences DEI. Moreover, results are sensitive to the model chosen as comparing among different estimations showed.

Table 4. System dynamic panel data estimation models: GMM (generalized method of moments) and robust.

	GMM-M1	**Robust-M1**	**GMM–M2**	**Robust-M2**	**GMM-M3**	**Robust-M3**	**GMM-M4**	**Robust-M4**
Dependent: DEI	**Coeff.**	**Coeff.**	**Coeff.**	**Coeff.**	**Coeff.**	**Coeff.**	**Coeff.**	**Coeff.**
DEI (−1)	0.8776 ***	0.8776 ***	0.8622 ***	0.8622 ***	0.8498 ***	0.8498 ***	0.8168 ***	0.8168 ***
TA	0.0569 *	0.0569	0.0819 ***	0.0819 **	0.0634 **	0.0634	0.0898 ***	0.0898 ***
ST	0.0564 *	0.0564 *			0.0614 **	0.0614		
ANE	0.0090 ***	0.0090 **	0.0097 ***	0.0097 **				
ROE	−0.0069	−0.0069	−0.0033	−0.0033	−0.0085	−0.0085	−0.0050	−0.0050
DD	0.0352	0.0352	0.0439 *	0.0439	0.0398 *	0.0398	0.0500 **	0.0500 *
AG	0.0404	0.0404	0.0418	0.0418	0.0345	0.0345	0.0361	0.0361
Constant	−2.0028 ***	−2.0028 ***	−1.4676 ***	−1.4676 ***	−2.1087 ***	−2.1087 ***	−1.4835 ***	−1.4835 ***
Wald chi(2)	235.76 ***	118.07 ***	259.74 ***	109.77 ***	236.22 ***	102.51 ***	247.15 ***	92.86 ***
Number of obs.	400–Two Step Results							

Notes: All variables except ROE and DD are in natural logarithms. DEI stands for disclosed environmental information; DEI (−1)—disclosed environmental information lagged one period; TA—total assets; ST—Sales Turnover; ANE—average number of employees; ROE—return on equity; DD—indebtedness degree; AG—age of entity. *, **, *** represent statistically significant at 10%, 5% and 1%, respectively. Instruments for differenced equation: GMM type L (2/2). DEI; Standard: D.TA, D.ROE, D.DD, D.AG. Instruments for level equation: GMM type LD.DEI, Standard _cons. Results have been obtained through STATA version 14. M1—Model 1: Including all independent variables; M2—Model 2: Excluding ST provided we have 3 size measures; M3—Model 3: Excluding ANE provided we have 3 size measures; M4—Model 4: Excluding ST and ANE provided we have 3 size measures.

To provide more robustness check in terms of analysis Table 4 presents the results obtained using the system dynamic panel data estimation model, considering *GMM* two-step procedure and robust standard errors. Once more, there are some results which might be validated through robustness check as Table 4 evidenced. It is possible to conclude that there are differences upon model's assumed form and that *GMM* type is more robust. Despite, all the coefficients are different from zero and the model is valid using these regressors. Still there might be other factors able to explain DEI. Moreover, we need the lagged values of DEI to explain present DEI, which means that once the firm starts disclosing environmental information, its investors demand more from it, forcing it to continue doing that.

In terms of general conclusions, it is possible to observe that size is an important (positive and significant) factor to explain DEI. This somehow contradicts the results obtained by Junquera and Barba [44], as the two authors analysed mainly SME companies (wineries). Radhouane et al. [45] showed that it is important to account for an industry's environmental sensitivity when investigating the value relevance of a company's environmental commitment and disclosure.

The same happens in terms of performance, when measured through sales turnover (ST), provided that ST coefficient reveals to be positive and statistically significant. Both results invalidate our hypothesis 1 and 2. These results are also seemingly different from the ones obtained by Junquera and Barba [44] and of Radhouane et al. [45].

Indebtedness positively influences DEI only when some variables are removed and under the *GMM* assumption. As such, we have mixed evidence if in fact indebtedness does or does not influence DEI, since robustness check provides mixed evidence. So, we cannot completely confirm or invalidate hypothesis no. 3. With respect to the age variable and provided it is not statistically significant, we can confirm hypothesis no. 4 that maturity does not influence DEI *but* as seen previously results are also sensitive to the model specification and as such we must be careful while providing conclusions. To sum up all our conclusions, we present in Table 5 a summary of our main findings.

Table 5. Summary of the main findings.

	PCSE				**Dynamic GMM**				**Dynamic Robust**			
	M1	**M2**	**M3**	**M4**	**M1**	**M2**	**M3**	**M4**	**M1**	**M2**	**M3**	**M4**
DEI(−1)					+ ***	+ ***	+ ***	+ ***	+ ***	+ ***	+ ***	+ ***
TA	+ ***	+ ***	+ ***	+ ***	+ *	+ *	+ **	+ ***		+ **		+ ***
ST	+ ***		+ ***		+ *		+ **		+ *			
ANE	+ **	+ ***			+ ***	+ ***			+ ***	+ **		
ROE												
DD		+ ***		+ ***		+ *	+ *	+ *				+*
AG				- ***								
H_1:	Not verified; Size + influences				Not verified; Size + influences							
H_2:	Verified; No significance				Verified; No significance of performance							
H_3:	Not verified; Debt + influences				Not verified; Indebtedness degree + influences							
H_4:	Mixed; AG–influences in M4				Verified; No significance of Age							

Notes: All variables except ROE and DD are in natural logarithms. DEI stands for disclosed environmental information; DEI (−1)—disclosed environmental information lagged one period; TA—total assets; ST—Sales Turnover; ANE—average number of employees; ROE—return on equity; DD—indebtedness degree; AG—age of entity. *, **, *** represent statistically significant at 10%, 5% and 1%, respectively. H1: Entity's size does not significantly influence disclosing of environmental information; H2: Entity's financial performance does not significantly influence disclosing of environmental information; H3: Indebtedness degree does not significantly influence disclosing of environmental information; H4: Entity's age does not significantly influence disclosing of environmental information. M1—Model 1: Including all independent variables; M2—Model 2: Excluding ST provided we have 3 size measures; M3—Model 3: Excluding ANE provided we have 3 size measures; M4—Model 4: Excluding ST and ANE provided we have 3 size measures. GMM—generalized method of moments; PCSE—Panel corrected standard errors. When significant, + means positive coefficient attained through results—means a negative coefficient sign.

5. Conclusions

Our paper evaluated transparency and responsibility of some BSE listed companies toward environmental aspects, as well as the dependency relation between degree of disclosing of environmental information and economic and financial factors such as entity's size, profitability, indebtedness degree and age. The data were collected from annual reports, sustainability reports and websites of sampled companies.

Our research can be of interest for potential investors concerned by companies' environmental responsibility, for existing shareholders, as well as for other stakeholders (local community, local and central authorities), besides providing several different contributions for the existent literature.

Present research brings value added to existing literature by completing and expanding the research in the environmental reporting area. The results of our study can contribute to:

(a) improving environmental reporting and environmental information disclosure practices;
(b) increasing transparency and managers' awareness toward environmental aspects. The non-financial and financial managers should be aware to the necessity of providing relevant, clear, real and complete information regarding environmental protection. Managers could use our index as a guide to conceive a framework for reporting environmental information in the companies they run;
(c) changing the behaviour/mentality of listed companies. Companies should understand current reporting trends and make sure their reports are fulfilling different users' expectations;
(d) increasing awareness of regulating authorities and supporting them in taking measures to determine companies disclosing the effect their operations carry upon the environment. Supplying the environmental information is less based on voluntary initiatives and more on official regulations. The authorities should know (and we reveal this) that only big companies, with a high sales turnover are willing to report environmental data/information;
(e) revealing the relation/connection between DEI and various economic, financial and non-financial factors (relation we have tested through various econometric approaches). The results show environmental reporting largely depends upon company size and its financial performance/profitability.

As opposed to previous studies, which analysed environmental information disclosure for a maximum of three years [6,30,71,72], our research employs a longitudinal analysis following disclosure trends for a five years period for 100 companies pertaining to 20 different activity sectors. We feel this period is sufficient to formulate clear and relevant conclusions regarding sampled companies' environmental information disclosure.

Studies using an index of disclosing environmental information (DEI index) are numerous [6,25,30,71,72].

Usually, precedent research has built the DEI index with a focus upon the non-financial information, the financial information being less approached. Our paperwork completes previous studies by conceiving a DEI index which includes and details financial information such as investments for environmental protection; costs with litigations or fines paid for disregarding environmental regulations; ecological taxes; environmental provisions and other costs. In building our DEI index we have used as a reference the Global Reporting Initiative (GRI) and the list used by Clarkson et al. study [6], while we have adjusted the measures to reflect Romanian specific legislation.

The evaluation results show that the interest for publishing environmental data is relatively low. The highest score obtained by sampled companies (calculated based on the environmental information disclosing index) was of 15, compared to the maximum possible value of 29. Unfortunately, there is still a significant part of listed companies which are reluctant to supply information concerning the impact their activities have upon the environment. The motives behind that can be diverse, that is, they do not want to acknowledge the impact their activities have upon the environment, no matter if they comply or not with legal requirements, they fear a reaction from environmental agency or from general public or from ignorance or indifference.

In Romania, only companies with over 500 employees listed on the stock exchange market or with state ownership have the obligation to publish a sustainability report. The other companies (even if their activity has a significant impact upon the environment) are not obligated and they do not present voluntarily sustainability reports. We can state that transparency is only the result of obligation and does emerge voluntarily.

The environmental information provided by sampled companies are mostly general, with details offered only about the environmental policies, objectives and in some measure environmental performances. The financial aspects concerning the implications upon environment are scarcely approached. Communication and transparency concerning environmental problems is still quite low, yet we can notice some positive aspects such as: (a) declaring the reduction in water and energy consumption by a large number of companies; (b) waste management policies (reducing the quantity and impact of waste); (c) formulating the environmental objectives and reaching them in a significant proportion; (d) stating the plans and actions programs concerning environmental protection and (e) legal conformity (aligning to environmental protection standards and complying with existing legislation).

Companies offer detailed information about environmental aspects only to public authorities, whereas the public authority can supply data on request from any natural or legal person (according to the Government Decision no. 878/2005 [3] concerning public access to environmental information). Transparency could increase only if high-risk pollution companies would be legally obligated to fulfil public environmental reports.

Our paper also looked to determine the influence of financial and non-financial factors and measures (such as entity's size, financial performance, indebtedness degree and age) upon the environmental information disclosure degree of BSE-listed Romanian economic entities. The connection between environmental information and financial and non-financial factors was tested through several different econometric approaches.

In light of the tests performed we have noticed that entity's size, expressed via average number of employees, significantly influences the quantity of information supplied by the companies. As a company gets bigger, increases the pressure from the general public and other stakeholders for the company to publish more information about its environmental activity. Also, the company becomes more interested to disclose more information to attract more investors and create a better image on the market. Results also seem to point that financial profitability, when measured through sales turnover (not true for ROE), influences the disclosure of environmental information and in a positive way. Thus, as company performance increases there might be more resources to affect to environmental awareness and firms might also do it for image concerns.

However, indebtedness degree, with mixed results and entity's age do not have a significant influence upon disclosing environmental information. Therefore, even if a company has a long history of existence it does not guarantee that it will disclose more environmental information. The results we have obtained can also indicate that profit generating entities are starting to be interested to invest in company environmental activities or in their reporting.

The number of employees can influence disclosing environmental information, as entities with over 500 employees have obtained a higher score, being legally committed to present sustainability reports. Entities are not obligated to disclose environmental information for interested information users. Romania has regulations, however, such as Government Order no. 178/2005 [1], which obligates certain companies (from polluting industries) to report some information, at determined time intervals, toward a certain state authority. However, this information is not public. Results can be more fruitful in the future by enlarging the number of firms in the sample, considering that the main limitation faced by this study was the lack of clear and evident environmental information disclosed by firms. If more information was disclosed, higher robustness would be ensured in the DEI index computed through the available information.

In a future development of the study we look to increase the sample to include other sectors, making a correlation between the type of industry and degree of disclosing environmental information. Also, future research can approach an inverse analysis of the impact environmental information has upon financial situation and financial performances of Bucharest Stock Exchange listed companies.

Managers awareness that financial and non-financial reporting of environmental connected issues is useful and can become essential for a company as it promotes and develops a confidence

relation toward internal and external stakeholders. In accordance to our results it should also improve company's image, either through increased reputation or increased visibility in the local community, provided both size and performance seem to exert a positive effect over disclosure of environmental information. Both variables should also improve the decision process regarding environmental awareness and disclosure. By opposition, results seem to indicate that ignoring environmental connected issues can induce damage to the environment, loss of clientele or decreased competitiveness.

Our paper has also other limits, such as the lack of information regarding the impact upon the environment for companies not listed in the stock exchange; the sample size; the lack in uniformity of environmental information presented by the companies, which makes difficult the comparison and interpreting the data they offer; the analysis of information supplied via annual or sustainability reports can be considered subjective.

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Appendix A

Table A1. Index of disclosing environment information.

The List with Environment Information	0	0.5	1
A. Company's Management Structure (maximum score of 4)			
1. Existence of a department with attributions in the protection of environment			
2. Existence of environment requirements imposed to both suppliers and clients			
3. Having the environment management certificate of ISO 14001			
4. Existence of information concerning the accounting department and environment accounting—green accounting (a distinct evidence of environment investments and of the costs implied by the environment protection)			
B. Credibility (maximum score of 4)			
1. Adopting a set of rules by which the company evaluates, reports and improves the effects its activity has upon the environment			
2. There is implemented and enforced a procedure for periodic identifying and evaluation of environmental aspects			
3. The existence of an internal environment audit			
4. Certification of environmental policies from the National Agency of Environmental Protection			
C. Measures of environment performance (maximum score of 6)			
1. Measures regarding the use and/or efficiency of using electricity			
1. Measures regarding the use and/or efficiency of using water			
3. Measures regarding CO_2 emissions			
4. Measures regarding other air and soil emissions			
5. Measures regarding waste management (generating and recycling waste)			
6. Measures regarding fuels			
D. Environment assets, debt and expenditures, (maximum score of 6)			
1. The value of intangible environmental investments (research and development expenditures, white certificates, exploration licenses, emission permits, etc.)			
2. The value of tangible environmental investments (pollution prevention installation, epuration stations, etc.)			
3. Expenditures regarding litigations or fines paid for disregarding environmental norms			

Table A1. *Cont.*

The List with Environment Information	0	0.5	1
D. Environment assets, debt and expenditures, (maximum score of 6)			
4. Environmental provisions (for radioactive waste, restoring the premises, etc.)			
5. Other expenditures regarding environment protection: a. Paying contributions for Environmental Fund; b. Costs for controlling the environmental impact: costs of preventing air and water pollution, costs for preventing noise, vibrations, smells, costs for preventing landslides and other costs of pollution prevention; c. Cost of management activity: costs for developing and enforcing a system of environment management, costs for educating employees in environment protection, costs of monitoring and measuring environment impact, measuring the quantity of chemical waste; d. Development cost: Cost of designing new environment friendly products; e. Cost of social activity: expenditures for environment protection, forestation, improving the scenery, for supporting local activities, organizing seminaries and other social activities)			
6. The value of environment related debt			
E. Visions and strategy (maximum score of 4)			
1. Internal and external communication regarding environment protection			
2. Stating the environment policies and strategies			
3. Environment objectives			
4. Plans and action programs for environment protection			
F. Entity's environment profile (maximum score of 2)			
1. Legal compliance for environment protection			
2. General presentation of the environmental impact of entity's activity/products/services			
G. Environment initiatives (maximum score of 3)			
1. Training for environment protection			
2. The existence of an action plan in case of environment incidents			
3. Involving the companies in developing environment community projects			
Maximum score of 29			

Notes: These results are valued and centralized as follows: 0: the entity does not present any environment information; 0.5: the entity provides only general information (only in a descriptive manner) regarding environmental aspects included in the index; 1: the entity offers detailed information regarding environment information, both descriptive and quantitative information.

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