



Board characteristics and non-financial information disclosures under Directive 2014/95/EU

Evidence from Portugal

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Abstract: This study analyses the effect of the Board of Directors' characteristics on the disclosure of non-financial information by Portuguese listed companies, in the context of the Directive 2014/95/EU. To this end, a non-financial information disclosure index was built, based on the Directive disclosure requirements and a set of items defined in the GRI standards. The results obtained show that the diversity of nationalities in the Board has a positive effect on the non-financial information disclosed regarding all topics provided for in the Directive, except for information on the business model. The academic background of the Board, i.e., the presence of members with master's or doctoral degrees has a positive effect on the disclosure of information on social matters. Board size, Board independence, CEO duality, Board gender diversity and Board activity do not appear to influence non-financial information disclosures. The findings support the need to consider less studied Board characteristics, as the diversity of nationalities and academic background, as dimensions of corporate governance that influence the quality of non-financial reporting.

Keywords: non-financial reporting; corporate governance; sustainability; board diversity.

1 Introduction

This paper analyses the effect of Board of Directors' characteristics on the non-financial information disclosed by the Portuguese listed companies, in the context of mandatory requirements of Directive 2014/95/EU. Thus, this work is framed within a broad line of research that relates corporate governance with the disclosure of non-financial information, whether mandatory or voluntary (Arslan et al., 2022; Chan et al., 2014; Dwekat et al., 2020; E-Vahdati et al., 2019; Endrikat et al., 2021; Lagasio & Cucari, 2019; Majumder et al., 2017; Naciti et al., 2022; Pucheta-Martínez et al., 2018; Samaha et al., 2015; Velte, 2020; Velte & Stawinoga, 2020).

Corporate governance involves a set of relationships between a company's management, its boards, its shareholders, and other stakeholders, providing the structure through which the objectives of the company are set, and the means of attaining those objectives and monitoring performance are determined (OECD, 2015). The Board of Directors plays an important role in corporate governance as it is responsible for monitoring management, advising on strategic decision-making, preparing, and disclosing information to the various stakeholders and providing networks with entities outside the company (Endrikat et al., 2021). Non-financial information disclosure provides useful information about the company's sustainability and Corporate Social Responsibility (CSR) performance, promoting dialogue and transparency to a wide range of stakeholders beyond shareholders (Gray et al., 1995).

In recent years, the role of corporate governance has evolved from the traditional defence of shareholders' interests to the strengthening of the company's relationships with the various stakeholders, even leading to the creation of committees for sustainability and social responsibility issues in the governance structures (Raimo et al., 2022). For this reason, it is important to obtain empirical evidence that documents the effect of good governance on the disclosure of non-financial information. The entry into force of the Directive 2014/95/EU, in 2017, provides a specific context for the disclosure of non-financial information, as several companies started this practice for the first time in that year (Carmo & Ribeiro, 2022).

The effect of Board characteristics on the disclosure of information on the matters required by the Directive has been studied by Carrillo et al. (2019), Nicolò et al. (2021) and by Beretta et al. (2023). Carrillo et al. (2019) analysed the effect of Board size, outside directors and CEO duality on corruption disclosures by listed firms that are part of the EuroStoxx 200 index. Nicolò et al. (2021) studied the effect of Board gender diversity on environmental, social and governance disclosures by European companies. Beretta et al. (2023) tested the effect of Board composition on conciseness, completeness, positive tone, and the reading of non-financial information, for Italian banks. To our knowledge there is no empirical evidence on this effect in the Portuguese context, a gap that this work aims to fill with the analysis of a sample of Portuguese listed companies and the first two years of the Directive's effectiveness (2017 and 2018). The non-financial information disclosed was measured by an index consisting of 102 items and the characteristics of the Board of

Directors tested are size, independence, CEO duality, diversity (of gender, nationalities, and academic background) and activity.

This study aims to contribute to a better understanding of the relationship between corporate governance and the disclosure of non-financial information, and its results are expected to be of interest to researchers and regulators. Researchers are provided with a theoretical framework and empirical evidence that can be compared with further studies carried out both in the Portuguese context and in other countries. For regulators it is demonstrated to what extent the implementation of good governance practices can be a mechanism to improve non-financial information disclosed.

After this introduction, the paper continues in Chapter 2 with the characterisation of the Portuguese context in terms of the requirements to disclose non-financial information and the characteristics the Board of Directors should have. Chapter 3 presents the theories that support the relationship between corporate governance and the disclosure of non-financial information. Chapter 4 is devoted to the development of hypothesis based on previous literature. Chapter 5 describes the research design. In Chapter 6 results are presented and discussed. And the paper ends with the conclusions and suggestions for future research.

2 The Portuguese Background

2.1 Non-financial disclosure requirements

The requirement to disclose non-financial information (NFI) provided for in Directive 2014/95/EU was introduced in Portugal in the Commercial Companies Code (CCD) through Decree-Law No. 89/2017, coming into force from annual financial years beginning on or after 1 January 2017. This obligation applies to large companies and parent companies of a large group, which have the legal status of public-interest entities and exceed the criterion of the average number of 500 employees on their balance sheet dates.

Given the nature of the legal instrument, the model for disclosure of NFI recommended by Directive 2014/95/EU is very flexible regarding the content, format, and assurance of that information. In Portugal, the transposition of the Directive occurred without significant changes, with Articles 66-B and 508-G of the CCD establishing that NFI must be presented annually in the form of a "non-financial statement" prepared by the management body and to be included in the Management Report or presented in a separate report. This separate report may be published together with the Management Report or made publicly available on the company's website no later than six months after the balance sheet date, and reference to it must be made in the Management Report.

The "non-financial statement" shall contain information on the following matters: environmental, social, employees, respect for human rights, anti-corruption, and bribery. To this end, the non-financial statement shall include: (i) a brief description of the business model; (ii) a description of the policies pursued in relation to the matters described above, including the due diligence processes implemented; (iii) the results of those policies; (iv) a

description of the main risks to and adverse impacts made on the entity's operations, and of how these have been managed; and (v) the non-financial key performance indicators relevant to the particular business.

Although it sets a context of mandatory disclosure of non-financial information, the flexibility allowed by Directive 2014/95/EU, in terms of its content and presentation format, provides managers with some discretion in deciding which items of information to disclose and their level of development.

Despite being mandatory, the flexibility allowed by Directive 2014/95/EU provides managers with some discretion in deciding which items of non-financial information to disclose and their level of detail.

2.2 Board of Directors characteristics

The Board of Directors (Board) plays a crucial role in minimizing agency conflicts and reducing information asymmetries, making it the most studied governance body in the corporate governance literature in general (Baker et al., 2020) and in the literature on financial and non-financial disclosure in particular (e.g., Lagasio & Cucari, 2019; Majumder et al., 2017; Naciti et al., 2022; Samaha et al., 2015).

In Portugal, the Corporate Governance Code of the Portuguese Corporate Governance Institute (IPCG, 2020) does not mention a minimum or maximum number of members for the Board, nor specific characteristics that they should have, stating only that:

- non-executive directors must provide the company with a balanced and adequate diversity of skills, knowledge and professional experience;
- the number of non-executive directors must be greater than the number of executive directors and each company must include a number of non-executive directors that fulfil the requirements of independence of not less than one third and always plural; and
- the size of the company, the complexity of its business and its geographical dispersion must be considered when determining the number of executive directors, in addition to the costs and the desirable agility of executive management.

3 Theoretical Framework

When the issue of corporate governance and disclosure of non-financial information is brought together, two theories need to be addressed: Agency Theory and Stakeholder Theory.

The Agency Theory predicts the existence of information asymmetries and conflicts between managers and shareholders, which may lead to opportunistic actions by managers to the detriment of shareholder's interests (Jensen & Meckling, 1976). The Board is vital in minimising agency problems, being responsible for hiring, firing, and rewarding top managers, as well as approving strategic decisions crucial to the life of the company (Fama

& Jensen, 1983). The Board is also responsible for the preparation and disclosure of information, through which it can reduce information asymmetries between managers and shareholders. Agency Theory predicts that the implementation of good governance mechanisms should lead to more efficient decisions, less information asymmetries and less agency conflicts between managers and shareholders.

Since non-financial information is addressed to a wider range of stakeholders and generally is voluntary, managers' decisions regarding its content and disclosure can be explained in the light of theories other than Agency Theory, such as Stakeholders Theory (Freeman, 1984; Freeman & Evan, 1990), Legitimacy Theory (Deegan, 2002; Suchman, 1995) or Signaling Theory (Connelly et al, 2011; Kirmani & Rao, 2000; Spence, 1973). Among these, we focus on Stakeholder Theory, which is based on the relationship between the company and a set of "interested parties", the stakeholders, who represent groups of interests that may affect or are affected by the pursuit of the company's objectives (Freeman, 1984). According to Stakeholder Theory, managers have a duty of accountability not only to shareholders, but to a wide group of stakeholders (Freeman, 1984; Freeman & Evan, 1990).

Hill and Jones (1992) combined Agency Theory and Stakeholder Theory in the so-called "Stakeholder-agency theory" to extend the classical agency relationship between managers and shareholders to a broader agent-principal relationship between managers and a wide group of stakeholders. In this relationship, agency conflicts may arise because managers make decisions guided by their effect on short-term financial performance and their image and reputation, while stakeholders are concerned with the social and environmental impacts of the company's actions in the short, medium, and long term (Raimo et al., 2022). In the context of NFI disclosure the asymmetry of information arises because social responsibility activities promoted by managers and the impacts of the company's operations on the environment and society are not observable by stakeholders, so they depend on the NFI reported to be aware of them. In this context, the Board and its committees have an important role to play in monitoring managers, promoting activities related to sustainability, and disclosing them in a reliable manner through NFI reporting.

When studying the characteristics of the Board members it is also necessary to address the Resource Dependence Theory, which predicts that Board members provide the company with resources regarding technical skills, different perspectives, links to other entities and legitimacy (Hillman et al., 2000; Hillman et al., 2002). For this reason, more diverse Board, for example in terms of gender, academic qualifications, professional experience, or nationalities, will be more efficient in performing their functions.

This work tests the effect of the following Board characteristics on NFI disclosure: size; independence; CEO duality; diversity in terms of gender and nationalities; academic qualifications; and activity. In the following section, we formulate the hypotheses for the relationship of each of these characteristics with NFI disclosure, based on the theoretical support presented in this section and the existing empirical evidence.

4 Literature Review and Hypothesis Development

4.1 Board size

Board size may influence, positively or negatively, the quality of corporate governance and, thus, the NFI disclosed. On the one hand, Resource Dependence Theory predicts that larger Boards tend to represent a greater diversity of experience and greater monitoring capacity (Hillman et al., 2000; Hillman et al., 2002), providing greater involvement in sustainability issues and disclosure of NFI. On the other hand, excessively large Boards may become inefficient (Ahmed et al., 2006; Lipton & Lorsch, 1992; Jensen, 1993). Furthermore, while smaller Boards facilitate communication and coordination among their members making them more efficient in the monitoring process, they can also be hampered for excessive workloads or a lack of diversity among their members in terms of experience (Beiner et al., 2004).

Empirical evidence also reveals these different effects of Board size on NFI disclosure. A positive effect of Board size on NFI disclosure was found by Correa-Garcia et al. (2020) in Latin American economic groups; by Gerged (2021) in listed companies in Jordan; and by Nuskiya et al. (2021) in listed companies in Sri Lanka. Raimo et al. (2022) also observed a positive effect of Board size on the disclosure of environmental information in the integrated reports of companies from several countries. However, there are also studies that have not evidenced any statistically significant effect of Board size on NFI disclosure (e.g. Carrillo et al., 2019; Jian et al., 2017; Orazalin, 2019).

The current study considers a positive effect of Board size on NFI disclosure, presenting the following hypothesis:

H₁: *There is a positive relationship between Board size and NFI disclosure.*

4.2 Board independence

Board independence is a mechanism that determines its monitoring capacity and the pursuit of its objectives (Fama & Jensen, 1983). Independent members are not directly involved in managing operations and implementing controls, and CEOs have little power over them, so they are more accurate in assessing managers' performance.

The role of independent members is to monitor and advise executive managers, preventing them from acting to expropriate shareholder wealth, leading them to implement long-term value creation strategies and to adopt more transparent conduct (Fama, 1980; Fama & Jensen, 1983). Thus, it is expected that Boards with a higher proportion of independent members have greater monitoring capacity and promote better disclosure of NFI, as a way to reduce information asymmetries and increase transparency in managers' actions.

The positive effect of the Board independence on environmental information disclosure in the annual report was found by Gerged (2021) for Jordanian listed companies and by Nuskiya et al. (2021) for Sri Lankan listed companies. Giannarakis et al. (2020) found a positive effect of Board independence on the environmental dimension of the Bloomberg

ESG disclosure index of US firms. Campanella et al. (2021) observed a positive relationship between the proportion of non-executive members and the Bloomberg ESG Disclosure Score of the world's largest companies included in the Global Forbes 2000 ranking. Carrillo et al. (2019) observed a positive relationship between Board independence and disclosures on corruption in a sample of European companies included in the EuroStoxx 200 Index. In turn, Orazalin (2019) did not observe a statistically significant relationship between Board independence and CSR disclosures in listed banks in Kazakhstan, which may be due to the regulation to which this sector is subjected. Prado-Lorenzo and García-Sánchez (2010), found a negative and non-significant relationship between the presence of independent members on the Board and environmental information disclosed in 2007 by companies from different countries, listed in the FTSE Global Equity Index Series (Global 500).

We predict a positive effect of Board independence on NFI disclosure, through the following hypothesis:

H₂: *There is a positive relationship between Board independence and NFI disclosure.*

4.3 CEO duality

CEO duality refers to the practice of a single person performing the functions of Chairman and CEO. Maintaining these two functions in the same person increases the risk of the CEO implementing strategies that favour his personal interests over the interests of the company and shareholders (Jensen & Meckling, 1976), making the reporting process less transparent and, thus, predicting a negative relationship between CEO duality and NFI disclosure.

However, the empirical evidence is mixed. Nuskiya et al. (2021) found a negative relationship between CEO duality and environmental disclosure in listed companies in Sri Lanka. Campanella et al. (2021) found the same type of relationship in a sample of companies in the Forbes Global 2000 ranking by measuring the information disclosed through the Bloomberg ESG Disclosure Score. Carrillo et al. (2019), on the other hand, observed a positive relationship between CEO duality and disclosures on corruption, in European companies. Also Gerged (2021) observed a positive relationship between CEO duality and environmental disclosure in listed companies in Jordan, suggesting that a CEO who is also the Chairman has more power and incentives to promote more transparent reporting, either as a way to respond to stakeholder pressures or to maintain their position and remuneration. Prado-Lorenzo and García-Sánchez (2010), found a positive and significant impact on environmental disclosure and CEO duality. Masi et al. (2021) found no statistically significant effect of CEO duality on NFI disclosure, for a sample of Italian listed companies.

Considering previous evidence, we make the following prediction:

H₃: *There is a positive relationship between CEO duality and NFI disclosure.*

4.4 Board diversity (gender and nationalities)

Board diversity is understood as the heterogeneity of characteristics of its members (Rao & Tilt, 2016). Resource Dependence Theory predicts that a greater diversity of Board members, in terms of gender, age, nationality or ethnicity, allows different opinions, perspectives and experiences, more networks with entities outside the company and greater ability to monitor and resolve conflicts between different stakeholders (Baker et al., 2020). However, diversity can also have negative consequences on the functioning of the Board, since it can divide opinions, leading to diverging forces within the body (Nielsen, 2010).

Since Boards are traditionally composed mainly of men, Board gender diversity refers to the presence of women on this body and is the most studied diversity dimension in the corporate governance literature, a fact to which the introduction of legislation on quotas in several countries has greatly contributed (Baker et al., 2020). The differences between men and women are recognized in terms of communication skills, personality, diligence and commitment, and women are considered to have greater sensitivity to environmental and social issues (Hofstede et al., 2010), which makes them more motivated to disclose information on these aspects.

Studies conducted in different institutional contexts confirm the positive relationship between gender diversity and NFI disclosure (e.g. Campanella et al., 2021; Masi et al., 2021; Nicolò et al., 2021; Orazalin, 2019). However, Prado-Lorenzo and García-Sánchez (2010) and Gerwing et al. (2022) did not find a significant effect of Board gender diversity on non-financial information.

The nationality of the Board members is a dimension less studied in the literature on corporate governance (Baker et al., 2020). Regarding the relationship between Board nationality diversity and NFI disclosure, the existing evidence has not shown statistically significant relationships (Anazonwu et al., 2018; Rodríguez-Ariza et al., 2014; Shamil et al., 2014).

Based on the preceding literature, we consider the following relationships:

H4: *There is a positive relationship between Board gender diversity and NFI disclosure.*

H5: *There is a positive relationship between Board diversity in terms of nationalities and NFI disclosure.*

4.5 Academic background

As with nationality diversity, academic background is also a Board dimension that has received little attention from researchers (Baker et al., 2020). However, we consider that the higher the academic degree of the Board members, the greater the information disclosure, presenting the following hypothesis:

H6: *There is a positive relationship between the presence of Board members with master's or doctoral degree and NFI disclosure.*

4.6 Activity

Recent studies show a positive relationship between the Board activity, measured by the number of meetings held during the year, and NFI disclosure (Campanella et al., 2021; Nuskiya et al., 2021). Measuring the quality of the Board in an aggregate way, based on the size, independence, presence of non-executive members and number of meetings, Bini et al. (2021) concluded that the quality of the Board positively influences the disclosure of key non-financial performance indicators.

Based on the preceding literature, it is reasonable to anticipate the following relationship:

H₁: *There is a positive relationship between Board activity and NFI disclosure.*

5 Research Design

5.1 Sample and data collection

The basic criteria for the selection of the companies to be analysed were to be listed entities, as they are entities of public interest; to have Euronext Lisbon as their main stock exchange; to be large companies or parent companies of a large group; and to have an average number of employees higher than 500 (on a consolidated basis in the case of groups). In addition, it was also required that information on the Board characteristics to be tested should be available in the corporate governance report or on the companies' websites. After applying these filters, we had a balanced panel data for 28 entities and the years 2017 and 2018.

The data was collected through a manual content analysis of management reports, sustainability reports, integrated reports, and corporate governance reports. These reports were obtained from the companies' websites and from the website of the Portuguese Securities Market Commission (CMVM).

5.2 Model

The hypotheses formulated will be tested based on the following model, to be estimated by the Least Squares Method:

$$NFI_{it} = \beta_0 + \beta_1 Board_{it} + Control_{it} + \varepsilon_{it}$$

Where:

NFI: Non-Financial Information disclosed by company *i* in year *t*, whose measurement is explained in section 5.3.1.

Board: Board characteristics of company *i* in year *t*, to be tested in each of the formulated hypotheses, whose definition is presented in section 5.3.2.

Control (SIZE): Size of the company measured through the logarithm of total assets, as a control variable.

5.3 Variables definition

5.3.1 NFI disclosure

To measure the NFI disclosed an analysis grid was built based on the six categories of information mentioned in Directive 2014/95/EU, disaggregated according to the content of the respective GRI guidelines in their version 4, based on the document *Linking the Global Reporting Initiative Standards and the European Directive on non-financial and diversity disclosure* (GSSB, 2017). The unit of analysis of this data was the presence or absence of a given item, treating them as a binary code, which assumes the value 1 if the item is disclosed (or justification for the absence is provided) and the value 0 if it is not disclosed without justification. Each of the sub-indexes was calculated by dividing the score obtained by the maximum possible score for the specific area. The overall index (NFII) resulted from the aggregation of all the sub-indexes (SI_i), considering the weight (W_i) of each in the global index. The total number of items analysed was 102. The sub-indexes and the overall index were expressed as a percentage.

$$SI = \frac{\text{Score obtained}}{\text{Maximum Score}} \times 100$$

$$NFII = \sum W_i \times SI_i$$

Table 1 presents the description of each sub-index and the total number of items that compose it (the maximum score).

Table 1. Description of the sub-indexes

Sub-indexes	Description	Number of items
BUS	Business Model	19
ENV	Environmental matters	33
SOC	Social matters	6
EMP	Issues related to employees, gender equality and non-discrimination	26
HUM		11
CORR	Anti-corruption and bribery matters	7
NFII	Non-financial Information Index	102

5.3.2 Board characteristics

Table 2 presents the definition of the variables that represent the Board characteristics to be tested in each of the hypotheses and the expected sign for the respective coefficient.

Table 2. Definition and measurement of Board characteristics

Hypothesis	Board characteristic	Expected sign
H1	BSIZE: Board size (logarithm of total number of Board members)	+
H2	BIND: Board independence (proportion of independent members in the total number of Board members)	+
H3	DUAL: CEO duality (dummy variable: 1 if the chair and the CEO are the same person; 0 otherwise)	+
H4	BGEN: Board gender diversity (proportion of women in the total number of Board members)	+
H5	BNAT: Diversity of nationalities of the Board (logarithm of the number of nationalities of the members of the Board)	+
H6	BACA: Board academic background (proportion of members with master's or doctoral degree in the total number of Board members)	+
H7	BACT: Board activity (logarithm of the number of Board meetings held per year)	+

6 Results

6.1 Descriptive and univariate analysis

Table 3 presents the descriptive statistics of the model variables.

By analysing Table 3 (Panel A), it can be concluded that the NFII varies between 16% and 91%, with an average of 53%, which shows some variability in the companies' behavior in terms of disclosure of NFI. As can be seen by the minimum values, there are entities that, after two years of application of the Directive still do not disclose any item of information regarding social matters (SOC), respect for Human Rights (HUM) and corruption and bribery (CORR). However, the maximum values show the existence of entities that disclose all the listed items concerning the business model (BUS), environmental matters (ENV) and social matters (SOC).

Table 3. Descriptive statistics

Panel A – Continuous variables					
Variable	Min.	Mean	Máx.	Sd.	N
NFII	16%	53%	91%	24%	56
BUS	42%	88%	100%	17%	56
ENV	3%	43%	100%	33%	56
SOC	0%	55%	100%	27%	56
EMP	8%	52%	96%	26%	56
HUM	0%	34%	91%	31%	56
CORR	0%	41%	86%	31%	56
BSIZE	0,48	0,96	1,32	0,24	56
BIND	0%	27%	100%	26%	56
BGEN	0%	17%	43%	11%	56
BNAT	0	0,20	0,70	0,24	56
BACA	0%	22%	100%	26%	56
BACT	0	1,02	1,72	0,32	56
SIZE	3,60	6,08	7,88	0,85	56
Panel B – Dichotomous variables (number of observations)					
Variable	1	0	N		
DUAL	15	41	56		

Definition of variables as per Tables 1 and 2.

The minimum values in Table 3 (Panel A) also show companies whose Boards have no independent members (BIND), have no women (BGEN) or have no members with master's or doctoral degrees (BACA). But there are also companies in which all members of the Board are independent and/or have master's or doctoral degrees. The mean value for the proportion of women on the Board is 17% and the maximum is 43%, and there are entities without a single woman on the Board. Table 3 (Panel B) shows that in most companies the CEO and the Chairman are not the same person (DUAL). Non-tabulated results show that the number of nationalities is between 1 and 5 and the number of meetings held by year is between 5 and 53.

6.2 Bivariate analysis

To assess the existence of an association between the independent variables and the dependent variable of each model, two types of analysis were performed. For the discrete variable DUAL the Chi-square test was performed, as shown in Table 4. For the continuous variables, Pearson's correlation coefficients were determined, as shown in Table 5. The correlation analysis also allows us to assess whether there are multicollinearity problems between the independent variables.

Table 4. Chi-square test results

Variable	Pearson Chi-Square	Cramer V	Asymptotic Significance (2-sided)
NFII*DUAL	45,431	0,830	0,222
BUS*DUAL	12,039	0,427	0,361
ENV*DUAL	35,060	0,729	0,110
SOC*DUAL	2,218	0,183	0,899
EMP*DUAL	27,652	0,647	0,229
HUM*DUAL	12,022	0,427	0,284
CORR*DUAL	7,743	0,343	0,258

Definition of variables as per Tables 1 and 2.

The results of the Chi-square test, presented in Table 4, do not allow to reject the hypothesis that the variables representing the level of non-financial information disclosed are independent of the DUAL variable, since the values obtained for the asymptotic significance (p-value) are higher than the standard levels.

The analysis of Pearson's correlation coefficients, presented in Table 5, show, as expected, that the non-financial information disclosure index (NFII) shows a positive and statistically significant correlation with all sub-indexes under analysis, as a result of the construction of the NFII variable itself. The correlation between this variable (NFII) and the variable entity size (SIZE) is, as expected, positive and statistically significant, indicating that larger entities tend to disclose more NFI. This result is also observed for the correlation between SIZE and all the sub-indexes under study.

Regarding the correlation between non-financial information disclosure index and sub-indexes, we denote a positive and statistically significant correlation between NFII and the variables related to independence (BIND), academic qualifications (BACA) and

diversity of nationalities on the Board (BNAT). For the sub-indexes, all of them show a positive and statistically significant correlation with the variable concerning the diversity of nationalities (BNAT). Except for Board activity, which does not show statistically significant correlations, the remaining characteristics of the Board (BSIZE, BIND, BGEN and BACA) show positive and significant correlations with some of the sub-indexes.

Table 5. Pearson correlations

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	NFII	1													
2	BUS	0,645**	1												
3	ENV	0,953**	0,521**	1											
4	SOC	0,803**	0,516**	0,773**	1										
5	EMP	0,925**	0,501**	0,842**	0,695**	1									
6	HUM	0,825**	0,464**	0,720**	0,606**	0,728**	1								
7	CORR	0,779**	0,476**	0,659**	0,574**	0,706**	0,714**	1							
8	BSIZE	0,195	0,099	0,172	0,207	0,199	0,123	0,196	1						
9	BIND	0,319*	0,241	0,285*	0,272*	0,340**	0,234	0,171	-0,014	1					
10	BGEN	0,059	0,088	-0,010	-0,118	0,165	-0,047	0,201	-0,019	-0,254*	1				
11	BNAT	0,620**	0,330**	0,646**	0,516**	0,547**	0,438**	0,491**	0,414**	0,438**	0,029	1			
12	BACA	0,318**	0,180	0,272*	0,342**	0,292*	0,240 [†]	0,393**	-0,026	0,180	0,111	0,214	1		
13	BACT	-0,095	-0,194	-0,083	0,017	0,006	-0,157	-0,143	0,186	0,272*	0,058	-0,007	-0,162	1	
14	SIZE	0,421**	0,235	0,431**	0,345**	0,422**	0,209	0,335**	0,558**	0,254*	0,002	0,623**	0,256*	0,121	1

* and ** denotes statistical significance at 5% and 1% levels, respectively (2-tailed). Definition of variables as per Tables 1 and 2.

Regarding the correlations between the independent variables of the models, the highest correlation is 0,623 between the variables BNAT and SIZE, suggesting that there are no multicollinearity problems between independent variables.

6.3 Multivariate analysis

For each dependent variable (NFII and the sub-indexes) a model was estimated, with a total of seven models. The independent variables correspond to the characteristics of the Board to be tested in each of the hypotheses and to the control variable (SIZE). The estimation results are presented in Table 6.

The analysis of Table 6 shows that the models reveal good explanatory power, measured by the *Adjusted R*², with the independent variables explaining between 7,7% and 42,6% of the variation in the dependent variable. The *F* statistic reveals that the tests carried out are globally significant and the independent variables, taken together, contribute significantly to explaining the variation in the dependent variable. The *Durbin-Watson* statistic reveals a value greater than *D*_U (1,90579) in the model where the dependent variable is BUS, indicating there is no autocorrelation of errors (positive of first order), for a significance level of 5%. For the remaining dependent variables, the test is inconclusive since the *Durbin-Watson* statistic lies between *D*_L (1,26263) and *D*_U (1,90579). The maximum values of the VIF are well below the critical value, which is 10, allowing us to conclude that there is no multicollinearity between the independent variables.

Table 6. Regression results

	NFII	BUS	ENV	SOC	EMP	HUM	CORR
Intercept	0,536* (2,260)	0,892** (4,325)	0,482 (1,512)	0,631* (2,151)	0,235 (0,841)	0,702 (0,054)	0,602 (1,725)
BSIZE	-0,002 (-0,014)	0,065 (0,552)	-0,165 (-0,904)	0,109 (0,648)	0,026 (0,161)	0,123 (0,605)	0,105 (0,529)
BIND	0,036 (0,298)	0,142 (1,349)	-0,088 (-0,541)	-0,099 (-0,661)	0,144 (1,010)	0,023 (0,126)	0,055 (0,306)
DUAL	0,002 (0,034)	0,014 (0,251)	-0,042 (-0,485)	0,097 (1,202)	-0,014 (-0,186)	0,083 (0,850)	0,020 (0,208)
BGEN	0,005 (0,020)	0,141 (0,679)	-0,254 (-0,791)	-0,570 (-1,929)	0,392 (1,395)	-0,175 (-0,490)	0,103 (0,294)
BNAT	0,551** (3,735)	0,126 (0,978)	0,895** (4,512)	0,579** (3,166)	0,423* (2,431)	0,549* (2,483)	0,599** (2,759)
BACA	0,193 (1,797)	0,052 (0,554)	0,195 (1,351)	0,400** (3,013)	0,169 (1,340)	0,279 (1,737)	0,317 (2,012)
BACT	-0,092 (-1,031)	-0,137 (-1,761)	-0,083 (-0,694)	0,064 (0,578)	-0,053 (-0,501)	-0,159 (-1,183)	-0,184 (-1,397)
SIZE	-0,010 (-0,235)	-0,005 (-0,128)	0,008 (0,140)	-0,056 (-1,071)	0,016 (0,319)	-0,078 (-1,218)	-0,049 (-0,778)
N	56	56	56	56	56	56	56
Adj. R ²	39,9%	7,7%	42,6%	32%	30,4%	18,6%	28,2%
F Stat.	5,735**	1,590	6,281**	4,281**	4,106**	2,629*	3,798**
Durbin-Watson	1,427	2,203	1,389	1,618	1,526	1,757	1,769
Max. VIF	2,381	2,381	2,381	2,381	2,381	2,381	2,381

* and ** denotes statistical significance at 5% and 1% levels, respectively. *t*-statistics in brackets. Definition of variables as per Tables 1 and 2.

Regarding the coefficients of the independent variables, they are significant at the standard levels for the variables concerning diversity of nationalities (BNAT), and academic background (BACA), corroborating hypotheses H₅ and H₆ but only for some non-financial matters. The diversity of nationalities (BNAT) positively influences total disclosure of non-financial information (NFII), as well as all topics provided for in the Directive, with the exception for information on the business model (BUS). The academic background (BACA) only influences, positively, the disclosure of non-information on social matters (SOC). The remaining hypotheses are rejected since Board size (BSIZE), Board independence (BIND), CEO duality (DUAL), Board gender diversity (BGEN) and Board activity (BACT) do not show statistically significant coefficients for the standard levels.

For Board size and NFI disclosure, previous studies have found a positive relationship (Correa-Garcia et al., 2020; Gerged, 2021; Nuskiya et al., 2021; Raimo et al., 2022) or the absence of a statistically significant relationship (Carrillo et al., 2019; Jian et al., 2017; Orazalin, 2019). Regarding the relationship between Board independence and NFI disclosure a positive sign was found by Campanella et al. (2021), Carrillo et al. (2019), Gerged (2021), Giannarakis et al. (2020), and Nuskiya et al. (2021); a negative relationship was observed by Prado-Lorenzo and García-Sánchez (2010); and Orazalin (2019) has not found a statistically significant relationship. For CEO duality previous evidence is also

mixed since Campanella et al. (2021) and Nuskiya et al. (2021) found a negative relationship; Carrillo et al. (2019), Gerged (2021) and Prado-Lorenzo & García-Sánchez (2010) found a positive relationship; and Masi et al. (2021) without statistically significant results. With regard to the effect of Board gender diversity on NFI disclosure, empirical evidence showing a positive effect comes from Campanella et al. (2021), Masi et al. (2021), Nicolò et al. (2021), and Orazalin (2019); a negative effect is documented by Prado-Lorenzo and García-Sánchez (2010) and Gerwing et al. (2022) did not find a significant effect of Board gender diversity on non-financial information. Regarding the diversity of nationalities on the Board the existing evidence has not corroborated the existence of a statistically significant relationship with NFI disclosure (Anazonwu et al., 2018; Rodríguez-Ariza et al., 2014; Shamil et al., 2014). For Board activity a positive relationship with NFI disclosure is documented Campanella et al. (2021) and Nuskiya et al. (2021). As far as we know, there is no previous evidence on the effect of the academic background on NFI disclosure.

Considering previous evidence, our results suggest that besides size, independence, activity and CEO duality, other Board characteristics, as academic background and diversity, should be considered as factors influencing the quality and quantity of non-financial information disclosed.

7 Conclusion

This paper has analysed the effect of Board characteristics on the NFI disclosed by Portuguese listed companies, in the context of the introduction of Directive 2014/95/EU, for the years 2017 and 2018. The results show a positive effect of the diversity of nationalities present in the Board on the disclosure of non-financial information, concerning all the topics provided for in the Directive, except for information on the business model. Also, the academic background of the Board, i.e., the presence of members with master's or doctoral degrees, positively influences the disclosure of non-information on social matters. Board size, Board independence, CEO duality, Board gender diversity and Board activity do not seem to influence non-financial information disclosure.

Considering previous evidence, our results suggest that academic background and diversity of Boards determine the quality and quantity of non-financial information disclosed. Thus, this work contributes to the literature by presenting evidence of interest to both researchers and regulators, as it demonstrates the importance of considering other Board characteristics, in addition to the already widely studied size, independence and CEO duality, as dimensions of corporate governance that influence the quality of non-financial reporting.

Despite its contributions, this research also has its limitations. The first concerns the small number of entities analysed, which limits some analysis, namely, due to the reduced number of entities in each industry. Future studies could extend this to other public interest entities and to countries other than Portugal and increase the period of analysis, in order to obtain a more complete picture on the evolution of NFI reporting and its relationship with several dimensions of corporate governance.

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