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CONTENTS

BOARD CONFIGURATION AND IR ADOPTION. EMPIRICAL EVIDENCE FROM EUROPEAN COMPANIES

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Abstract

Over the last few years, companies are increasingly international, and a growing number of stakeholders is affected by the sustainability aspects of business, resulting in significant changes in how corporate information is both perceived and published.
This scenario has led to many company Boards of Directors (BoD) voluntarily adopting a new communication tool, known as Integrated Reporting, (IR) which is a single disclosure document that satisfies stakeholders' increasing need for information.
This study wants to contribute to existing literature on the relationship between corporate governance and IR, investigating if board configuration (size, gender, and average age) influences its adoption.
The analysis relies on a sample of 1,047 companies from 18 European countries for the year 2015. These results show a positive relationship between the decision to adopt IR and board size and female board members, whereas the older board members have a negative effect on it.
Our findings present implications both from the theoretical and practical point of view. On a theoretical level, the research confirms that board diversity needs to be analysed more in detail, because of its contribution to company's transparency. Moreover, the results provide to standard setters and regulators a useful insight of the important distinction among various board members' features.

Keywords: Disclosure, Integrated Reporting, Corporate Governance, Board Composition

1. INTRODUCTION

Firms are obliged to disclose certain information in their annual reports in accordance with laws, regulations, and adopted accounting standards (Cheng and Courtenay, 2006). This is the minimum level of disclosure required by the market so that any possible investor can formally assess the company.

Voluntary disclosure, on the other hand, includes additional information that a company communicates beyond what is legally required (Ariff, 2013). It gives investors a clear idea of a company's economic viability (Boesso and Kumar, 2007) and reduces the so-called information asymmetry problem (Healy and Palepu, 2001). Disclosure is seen as the best way to communicate with investors (Ho and Wong, 2001) and transparency via disclosure and board monitoring are possible solutions to easing agency and asymmetric communication problems (Baumol and Bowman, 1965; Healy and Palepu, 2001; Quagli, 2004; Corsi *et al.,* 2016).

Nowadays, stakeholders manifest implicit and explicit information needs. Firstly, they need to understand what the new dynamics for value

creation are. Secondly, following the recent financial scandals, they need to be highly aware of the firms' actions to maintain and increase trusting relationship. Eventually, they manifest greater sensitivity to *Corporate Social Responsibility* (CSR) issues. This has led to increased attention on corporate disclosure topics (D'Orio and Lombardo, 2007).

When and if the information is insufficient, investment decisions are taken subjectively instead of objectively and this can lead to market share prices fluctuations. Firms can consequently experience problems getting capital to finance their decisions or may incur a higher cost of capital (Singhvi and Desai, 1971).

Different theories try to explain why a firm should voluntarily disclose information. The *agency theory* argues that firms disclose information voluntarily in order to reduce agency costs and show that they are using company resources in shareholders' best interests (Barako *et al.,* 2006; Arshad *et al.,* 2009). According to the *signaling theory*, the voluntary information helps firms to distinguish their performance from other competitors (Campbell *et al.,* 2001), improve their reputation and attract new investment (Verrecchia, 1983). Furthermore, the *capital need theory,* on the other hand, suggests that more voluntary disclosure helps companies obtain funds at a lower cost (Choi, 1973).

Even though voluntary disclosure is important, management has the final say (Chen and Jaggi, 2001) and it decides which - and how much - information is to be voluntarily disclosed in the firm's annual report (Eng and Mak, 2003). Therefore, the presence of the company BoD is fundamental for monitoring the management's decisions and ensuring that they disclose credible rather than self-serving voluntary information (Healy and Palepu, 2001). This will help the firm build a sound corporate disclosure system in the long term (Qu and Leung, 2006).

A firm's shareholders elect the BoD to govern and manage its business (Monks and Minow, 2008). As a primary corporate governance mechanism, it has an essential role in aligning management's interests with shareholders (Bassen *et al.,* 2006; Brennan, 2006). However, effective monitoring of the board is also determined by its composition (Mizruchi, 2004; Brick et al, 2006) which, in fact, is expected to affect the amount of voluntary disclosure. Board composition can be defined in various ways, including value system, nationality, gender, board size, industry background, etc. (Van der Walt *et al.,* 2006; Kang et al, 2007).

Stakeholders' increasing need for more information has led to companies adopting various accounting methods beyond the traditional financial reporting: reports on management, governance, intellectual capital, and sustainability. On the other hand, providing stakeholders with large quantities of documents does not necessarily mean giving them a complete insight into the company's affairs. So, a single communication tool giving clear financial and nonfinancial information was deemed necessary in order to inform stakeholders on company performance: IR framework.

IR aims to replace the earlier dominant practice of separating financial and sustainability information through publishing a single integrated document (Lozano and Huisingh, 2011; Jensen and Berg, 2012; IIRC, 2013; Incollingo and Bianchi, 2016).

The *International Integrated Reporting Council (IIRC)* believes that integrating financial and sustainability information will better satisfy investors' need for information by providing a complete picture of a company and its performance. The IIRC (2013) describes an IR as «bringing together material information about an organisation's strategy, governance, performance and prospects in a way that reflects the commercial, social and environmental context within which it operates».

This study focuses on the relationship between financial reporting and corporate governance and contributes to enriching studies of factors that could affect a company's choice of IR as a disclosure document. It analyses the relationship between board diversity and the decision to adopt IR. Board diversity represents a significant corporate governance mechanism and, in particular, Ingley and Van der Walt (2003) describe diversity in corporate governance as board composition and the combination of individual members' qualities, characteristics and expertise concerning board decision-making and other processes.

In this study, "board composition" includes board size, gender, and member's age, and our research investigates the effects of these characteristics when considering adopting IR.

Unlike previous studies focused on analysing the effects of adopting IR, our research takes an upstream position checking whether certain board features influence the decision to adopt IR and - to the best of our knowledge – it is the first study of its kind. We believe that a deeper understanding of the factors influencing this decision is essential for academics, companies and - especially - policy-makers.

This paper starts with the theoretical background, then goes on to explain the data, methodology, and results, discussion and conclusions and concludes with limitations and avenues for future research.

2. MAIN THEORETICAL FRAMEWORK

IR can be considered an evolution of the sustainability report. It could represent an opportunity for increased transparency, governance and decision making for every type of profit or non-profit organisation (Eccles and Krzus, 2010; Adams *et al.,* 2011; Carels *et al.,* 2013). Sourcing and then publishing more information has not only decidedly had a positive effects on decision-making processes within a company, but also with investors and all stakeholders in general (Li and Qi, 2008). It should provide a briefer and more coherent, balanced picture of the company's performance (Eccles and Krzus, 2010; Suttipun, 2017).

Academic literature on the subject has little relevance and empiric research is still minimal. One of the most significant supporters of IR is Eccles

who analysed the issue back in 2010. His basic idea is that this new information tool could favour a change in company culture. Such studies have been carried out concerning similarities and differences between companies that draw up sustainability report and those that publish IR (Jensen and Berg, 2012).

In 2013, Owen looked into the origins and developments of IR, whereas other academics (Cheng *et al.,* 2014) critically analysed key issues of the IIRC's Framework Consultation Draft. Flower (2015) is one of the most critical arguing that the IIRC made a mistake in not forcing companies to add the negative impact of outside sources into the IR.

A thorough and very interesting work was done by De Villiers et al. (2014) who discussed how reporting can be interpreted and applied in different ways.

Stubbs and Higgins (2012) investigated internal mechanisms adopted in reporting processes in order to determine if IR stimulated better disclosure procedures. Some academics (Brown and Dillard, 2014) criticised IR, maintaining it to be limited or biased. An interesting study carried out in the Netherlands (Van Bommel, 2014) acknowledged that the IR tool was able to enhance different values. Academics Haller and Van Staden (2014) highlighted the importance of giving information concerning the value created by the company and how it is distributed among all the stakeholders.

Studies of factors that can condition IR practices have been carried out. In fact, Frias-Aceituno et al. (2013) reported on the influence of the legal system and the composition of the board, while Garcia-Sanchez et al. (2013) recognised that culture is a fundamental factor.

D'Este et al. (2013) carried out an interesting study about the choices of IR by groups concerning territorial interests. In fact, the research showed a positive relationship as those companies with stronger local roots were more inclined to publish their data.

The information that has to be produced however can be quite a barrier for many organisations. Collecting, processing and publishing this information frequently incur further costs. Companies are also reluctant to publish too much data for fear of giving the competition strategic information (Adams and Simnett, 2011). So, this new tool offers a serious challenge to existing control processes (Adams *et al.,* 2011) and an example is the concept of materiality.

The relationship between corporate governance and the disclosure practice of companies have been widely analysed by the academic literature with particular focus on the corporate governance structure and the BoD's characteristics (Healy and Palepu, 2001; Adams, 2002; Eng and Mak 2003; Ricart *et al.,* 2005; Allegrini and Greco, 2013; Raithatha and Bapat, 2014; Soliman *et al.,* 2014; Samaha et al. 2015). The BoD, as the firm's governing body, is responsible for safeguarding the interests of different stakeholders, for example through the dissemination of information, in order to reduce information-related problems and prevent opportunistic behaviour (Lev, 1992; Richardson and Welker, 2001). Jensen and Meckling (1976) proposed a framework analysis in which a complementary or substitutive link was established between companies' information disclosure practices and their internal mechanisms of corporate governance. The complementary relationship, theoretically, is based on the assumption that effective corporate governance strengthens a company's internal control. Thus, more information is disclosed in order to reduce problems arising from opportunistic behaviour and information asymmetries. In a substitutive relation, the strength of corporate governance would prevent or reduce the disclosure of information to investors, as a result of the internal control mechanisms reliability.

Based on the theoretical framework, we assume that there is a strong relationship between some board features and the adoption of IR. In fact, we assume the existence of a complementary relationship between board characteristics (measured by its size, women and average age) and the incentive for a firm to provide voluntary disclosure through IR.

2.1. Board size

Intellectual capital has become a key set of resources for gaining advantage in a business environment that has no geographic boundaries (Lev, 2004). In fact, the *resource dependency theory* argues that larger boards allow firms to bring diverse and vital intellectual resources onto the board as they can make decision-making effective and efficient, either directly or indirectly, as well as meet global challenges (Pfeffer, 1972, 1973; Pfeffer and Salancik, 1978; Kosnik, 1990; Parum, 2005).

Monitoring and controlling management actions are the most important functions of the BoD (Fama and Jensen, 1983). According to Gandia (2008), increasing the number of board members improves the capability of the board in monitoring and controlling management actions. This enhances the transparency and the disclosure of more information by management. Adam et al. (2005) argue that larger boards have varied experiences and dispersed opinions. This, in turn, increases their monitoring capacities and enhances the firm's disclosure policies. Empirical evidence reported by Cheng and Courtenay (2006) suggests that larger boards tend to be associated with greater levels of information disclosure. It is worth noting that the corporate governance code for publicly listed firms in Jordan, recommends a board with more than five members and less than fifteen for the industrial and services sectors (*Jordan Securities Commission*, 2009). However, for the insurance sector, the code recommends a board of no less than seven members (*Insurance Regulatory Commission*, 2006).

Large company boards are subject to more severe agency problems, and therefore monitoring processes are less optimal (Yermack, 1996; Eisenberg *et al.,* 1998; De Andrés *et al.,* 2005). According to Gallego-Alvarez et al. (2011), the complexity of management control and of ensuring the accuracy of the information (including financial

information) provided, requires the presence of a considerable number of directors, with the experience and diversity required to successfully perform these supervisory functions. In this sense, better monitoring would result in the disclosure of larger volumes of information about the company.

Empirical evidence regarding the relationship between the size of the board and information disclosure is contradictory. Prado-Lorenzo and Garcia-Sanchez (2010) observed a negative relationship. Pearce and Zahra (1992), Dalton *et al.* (1999), Larmou and Vafeas (2010) and Izzo and Fiori (2016) observed a positive relationship.

A greater number of directors has a positive effect on the breadth and integration of corporate information provided because an IR requires the input of directors with different types of expertise. The occurrence of such a variety of viewpoints is likely to be more common in larger boards.

Board size can add to a diversity of perspectives, offering greater choices of solutions and more decision criteria, in order to achieve the board's goals and objectives on behalf of investors (Schweiger *et al.,* 1986; Eisenhardt and Bourgeois, 1988; Flaherty *et al.,* 2006).

H1: Is there a positive relationship between BoD size and IR?

2.2. Women

The diversity of the BoD is defined as the disparity of the characteristics presented by its members (Robinson and Dechant, 1997). Commonly, studies including this feature have focused on the gender and nationality of directors (Gul *et al.,* 2004; Prado-Lorenzo and Garcia-Sanchez, 2010).

Several authors have argued that the presence of women at senior management level positively influences company behaviour (Betz *et al.,* 2013). These new behaviour patterns are often associated with greater information transparency, especially regarding sustainability issues (Barako and Brown, 2008; Prado-Lorenzo and Garcia-Sanchez, 2010).

Gender diversity is now one of the most challenging research issues as the numbers of women in top management and on corporate boards increase (Singh *et al.,* 2001). Gender diversity may benefit a board's decision-making process. New prospectives and ideas are presented and discussed (Alvarez and McCaffery, 2000). Diversity may also become a competitive advantage because it adds to the board's knowledge base, creativity, and innovation (Watson *et al.,* 1993). Empirical results by Huse and Solberg (2006) suggest that female directors are more interested in meetings than males, so they are more likely to make good decisions. Adams and Ferreira (2009) report that female directors have a strong effect on board input and output. They also have better attendance records than males and are more likely to join monitoring committees.

Adams and Ferreira (2004) suggest that boards with more women directors are held more frequently and they have different board attendance patterns which make diverse boards more effective than homogenous boards. Adams and Ferreira (2004) argue that «women are intrinsically more "stabilising"» than men and Huse and Solberg (2006) concluded that women could contribute to boards by creating alliances, preparing and involving themselves in board matters, attending important decision-making spaces and being visible.

Literature developed around corporate governance aspects suggests that women on boards and committees are more diligent when controlling, transparency and disclosure thus providing a better quality of earnings (Adams and Ferreira, 2009; Srinidhi *et al.,* 2011).

Gibbins *et al.* (1990) argue that board gender diversity may explain firms' disclosure practices in their annual reports.

About gender, a confound investigation factor arises from *critical mass theory* (Konrad *et al.,* 2008). This theory suggests that when a certain threshold (Kramer *et al.,* 2006) is reached (a "critical mass") the impact of a subgroup (such as "women on the board") becomes more noticeable (Pastore and Tommaso, 2016). Kramer *et al.* (2006) argue that «a board with three or more women is more likely to experience the positive effects and contributions to good governance than a board with fewer women». According to Kanter (1977), having only one member of a demographic group can lead to tokenism. Tokens are considered to represent an entire demographic group (women) and are seen by the dominant group (men) as a stereotype. Based on critical mass, research into the relationship between female directors and performance might require a distinction between boards with one woman and boards that have reached a certain threshold. This standardisation counteracts the "tokenism phenomena", which implies that companies only include a few female board positions in order to satisfy external expectations (Torchia *et al.,* 2011).

H2: Is there a positive relationship between the presence of women on BoD and IR?

2.3. Average age

Dahya, Lonie and Power (1996) postulate that board experience will assist in making information more transparent as comparisons can be made based on knowledge of other organisations. Experienced directors are also more likely to have greater incentives to be effective monitors of management to safe-guard their reputation or improve their attractiveness on the labour market (Kaplan and Reishus, 1990). Directors with diverse bases of experience may improve board monitoring and decision making (Useem, 1993; Westphal and Milton, 2000).

Corporate boards monitor management decisions and behaviour and endeavour to add value through aligning management and investors' interests (Fama and Jensen, 1983; Del Brio *et al.,* 2006). Their effectiveness, however, in undertaking this role is influenced by many things including the directors' personal characteristics i.e. gender, age, education and experience (Campbell and Minguez-Vera, 2008; Ahern and Dittmar, 2012). Age represents an individual's experience and risk-taking manner (Herrmann and Datta, 2005), so it can be assumed that as older directors have cumulative

experience, they may have a substantial impact on the firm's performance (Hambrick and Mason, 1984; Reed and Defillippi, 1990). Empirically, existing evidence does not support older directors, but it actually reports that younger directors outperform older ones (Hambrick and Mason, 1984; Sonnenfeld, 2002; Rose, 2005; Nakano and Nguyen, 2011). One possible explanation is that young directors are more open to change (Hambrick and Mason, 1984) and new ideas (Zajac and Westphal, 1996). They are also liable to take risks, are more innovative and more efficient in governance oversight (Grimm and Smith, 1991).

H3: Is there a positive relationship between the increase in average age on BoD and IR?

2.4. Control variables

This paper uses established variables in governance studies that can influence disclosure for companies. They include whether a company is listed on the stock market, activity sector, corporate size, leverage, growth opportunities and profitability. Stock exchange listing influences firms to disclose more diverse information - financial, social and environmental - which is believed to be required by those markets, so it is likely to positively impact the quality of investors' decisions (Ullmann, 1985). Multiple listed corporations raising capital on international markets will have higher levels of disclosure than domestically listed enterprises if overseas stock market requirements are greater than domestic exchanges. In fact, Cooke (1989) found this to be the case, and Singhvi and Desai (1971) and Choi (1973) also found that listing status was a significant explanatory variable.

The activity sector is an additional documented explanatory factor of voluntary disclosure. Indeed, prior literature argues that companies from environmentally sensitive industries disclose more environmental information than less polluting companies, because of their significant impacts on the environment (Pahuja, 2009).

A positive relation between the corporate size and the volume of data deliberately disclosed is reported by some scholars (Da Silva Monteiro and Aibar-Guzmán, 2010; Sotorrio and Fernandez-Sanchez, 2010), while some others have discovered no factually noteworthy relationship (Khanna *et al.,* 2004; Ortiz and Clavel, 2006).

In order to represent the leverage, the study relies on debt-equity ratio as per Ahmed and Courtis (1999).

In order to point out information based on the growth, the study relies on the firms' sales growth (Smith and Watts, 1992; Gaver and Gaver, 1993).

The profitability side is taken into account by including the return on assets variable (Larrán and Giner, 2002; Giner *et al.,* 2003; Marston and Polei, 2004; Prencipe, 2004).

3. RESEARCH METHODOLOGY AND SAMPLE

To test these hypotheses, we have selected a total of 1,047 European companies from 18 different countries, identifying those companies that adopted IR (n=78), following the IIRC standards, for year 2015 and a random sample of companies that did not adopt the IR but only the mandatory financial report, for the same year (see Table 1).

In order to identify companies that adopted IR according to the IIRC standards, we relied on the official list of the IIRC website.

The comparison sample was determined by applying a stratification sampling procedure based on size, sector, and country characteristics of the "population" of the companies that adopt IR for the year 2015.

To build the sample, we have relied on the *Amadeus Database*, verifying and double checking on corporate websites if the kind of disclosure tools utilised, from a content point of view, was comparable to the IR, even when different ways on naming reports were approached.

An analysis of the disclosure tool has been carried out not only by a formal point of view (e.g. various way utilised on naming reports) but also from a substantial perspective.

Table 1. Sample composition

Country	*Companies presenting IR*	*Companies no presenting IR*
UK	17	194
Spain	12	138
Netherlands	11	134
Russia	7	104
Italy	7	93
France	5	67
Germany	4	43
Poland	3	23
Finland	3	29
Austria	1	11
Belgium	1	15
Bulgaria	1	15
Switzerland	1	15
Denmark	1	13
Hungary	1	9
Luxembourg	1	13
Sweden	1	23
Ukraine	1	30
Total	*78*	*969*

Source: own elaboration.

66.76% of the sample is made up of unlisted companies and around 6% of them adopt IR as their disclosure document.

Because the dependent variable is binary (equal to 1 if the company has developed IR, 0 if the company is not presenting it), this study uses logistic regression (Logit) (Vani Kant, 2001; Bajari *et al.,* 2009) to test its hypotheses. Listed below are the dependent variable (IR), the three independent variables (board size, women and average age) and the six control variables (listed, size, leverage, growth sales, profitability, sector).

Dependent variable:

IR: 1 = the company has developed IR; 0 = the company is not presenting it

Independent variables:

BOARD SIZE: Number of directors on the board
WOMEN: Percentage of women on the board
AVERAGE AGE: Average age of board's members

Control variable:

LISTED: 1 = listed company; 0 = no listed company
SIZE: Log. Total Asset
LEVERAGE: Debts/Equity
SALES GROWTH: Growth measured over at least two

years sales growth
PROFITABILITY: ROA
ACTIVITY SECTOR: 10 dummies (Automotive, Business Support Services, Consulting, Electricity, Extraction, Healthcare, Oil, Retail Trade, Telecommunications and Transportation)

Table 2. Summary of independent variables.

Independent Variables	*Hypothesis*	*Expected Sign*
Board Size	H1	+
Women	H2	+
Average Age	H3	+

Source: own elaboration.

The Logit equation was as follows:

$$IR = \beta_0 + \beta_{1\ Board\ Size} + \beta_2 \%_{Women} + \beta_{3\ Avarage\ Age} + \beta_{4\ Listed} + \beta_{5\ Size} + \beta_{6\ Leverage} + \beta_{7\ Sales\ Growht} + \beta_{8\ ROA} + \beta_{9\ Economic\ Sector} + \mu \quad (1)$$

We then transformed the IR dependent variable in terms of probability of the event:

$$Probability = Log\ (P/(1-P)) = \beta_0 + \beta_{1\ Board\ Size} + \beta_2 \%_{Women} + \beta_{3\ Average\ Age} + \beta_{4\ Listed} + \beta_{5\ Size} + \beta_{6\ Leverage} + \beta_{7\ Sales\ Growth} + \beta_{8\ ROA} + \beta_{9\ Economic\ Sector} + \mu \quad (2)$$

4. RESULTS AND DISCUSSION

4.1. Descriptive statistics

Tables 3 show summary statistics for the numerical variables for companies adopting IR, while Table 4 presents the same information for those who do not adopt it.

According to Table 3, the board size in companies with IR ranges between 1 and 35 directors with an average size of approximately 11.76 directors. Overall, female directors make up 20.38% of the total directors. The average age of directors is approximately 55 years old.

Table 3. Summary statistics for companies presenting IR

	Obs.	*Min*	*Max*	*Mean*	*SD*	*Skew.*	*Kurt.*
Board size	78	1	35	11.76	8.496	0.668	- 0.168
% Women	78	0	100	20.38	18.39	1.387	3.807
Average age	78	37	69.18	54.93	6.10	-0.212	0.330
Size	78	3.11	9.64	6.33	1.27	-0.618	0.295
Leverage	78	0.12	76.26	7.09	15.76	3.20	9.675
Sales Growth	78	-0.38	70.71	0.99	8	8.80	77.637
ROA	78	-34.01	51.12	6.70	11.47	1.44	7.130

Source: own elaboration

According to Table 4, the board size in companies without IR ranges between 1 and 57 directors with an average size of approximately 10.66 directors. Overall, female directors make up 15.09% of the total directors. The average age of directors is approximately 55 years old.

Table 4. Summary statistics for companies not presenting IR

	Obs.	*Min*	*Max*	*Mean*	*SD*	*Skew.*	*Kurt.*
Board size	969	1	57	10.66	8.87	1.150	1.388
% Women	969	0	100	15.09	17.85	1.720	4.451
Average age	969	30.66	86	55.18	6.22	0.019	1.204
Size	969	2.52	11.65	6.73	0.77	-0.242	5.631
Leverage	969	-4.83	86.12	34.79	31.25	21.88	9.417
Sales Growth	969	-0.99	100.41	11.56	3.34	31.02	124.620
ROA	969	-77.47	91.58	4.63	10.57	1.49	19.562

Source: own elaboration

Table 5. Frequencies and percentages of dummy variables for the whole sample (part 1)

	Dummies Variables	
IR	Frequency	Valid Percentage
Sensitive (1)	78	7.4
Non-sensitive (0)	969	92.6
Total	1,047	100
Listed	Frequency	Valid Percentage
Sensitive (1)	351	33.5
Non-sensitive (0)	696	66.5
Total	1,047	100

Table 5. Frequencies and percentages of dummy variables for the whole sample (part 2)

	Dummies Variables	
Automotive	Frequency	Valid Percentage
Sensitive (1)	122	11.7
Non-sensitive (0)	925	88.3
Total	1,047	100
Business Support Services	Frequency	Valid Percentage
Sensitive (1)	32	3.1
Non-sensitive (0)	1,015	96.9
Total	1,047	100
Consulting	Frequency	Valid Percentage
Sensitive (1)	162	15.5
Non-sensitive (0)	885	84.5
Total	1,047	100
Electricity	Frequency	Valid Percentage
Sensitive (1)	99	9.5
Non-sensitive (0)	948	90.5
Total	1,047	100
Extraction	Frequency	Valid Percentage
Sensitive (1)	38	3.6
Non-sensitive (0)	1,009	96.4
Total	1,047	100
Healthcare	Frequency	Valid Percentage
Sensitive (1)	7	0.7
Non-sensitive (0)	1,040	99.3
Total	1,047	100
Oil	Frequency	Valid Percentage
Sensitive (1)	54	5.2
Non-sensitive (0)	993	94.8
Total	1,047	100
Retail Trade	Frequency	Valid Percentage
Sensitive (1)	246	23.5
Non-sensitive (0)	801	76.5
Total	1,047	100
Telecommunic.	Frequency	Valid Percentage
Sensitive (1)	247	23.6
Non-sensitive (0)	800	76.4
Total	1,047	100
Transportation	Frequency	Valid Percentage
Sensitive (1)	40	3.8
Non-sensitive (0)	1,007	96.2
Total	1,047	100

Source: own elaboration

4.2. Board composition and IR

The result of the bivariate correlation analysis between independent variables shows that the highest value of the Spearman correlation coefficients (r) is 0.400. The coefficients are significant at different levels of confidence and the values are not very high.

According to Table 7, the model has an R^2 of Cox and Snell is 0.0454 On the other hand, the Chi-square test is found to be statistically significant (Chi2=48.13, ρ=0.000,). This means that the model explains almost 99% of the variation in the voluntary disclosure amongst sampled firms. The VIF test suggests that the model does not suffer from any multicollinearity problem where the VIF of all variables ranges between 1.008 and 1.545.

The most significant variables are: % WOMEN and SIZE.

A summary of the results of the correlation analysis performed on the model is presented in Table 6.

Table 7 shows a positive relationship between the BOARD SIZE and the adopting of IR (β_1=.019). This means that as more directors are added to the board, its monitoring capacity increases and thus more information is disclosed. The relationship is found to be significant (ρ=.198).

Therefore, *Hypothesis 1 is supported.*

Table 7 also shows that the coefficient of % WOMEN is positive as expected (β_2=.018) and statistically it is significant (ρ=.003).

Thus, *Hypothesis 2 is supported.*

The relationship between directors' AVERAGE AGE and IR is found to be negative and insignificant (β_4=-.012, ρ=.55), this means that firms with corporate boards made up of younger directors disclose more information and they are more likely to adopt IR.

Thus, *Hypothesis 3 is not supported.*

Table 6. Correlation matrix

		1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*	*19*
1	IR	1																		
		0.000																		
2	BOARD SIZE	0.033	1																	
		0.293	0.000																	
3	% WOMEN	0.077*	.179**	1																
		0.012	0.000	0.000																
4	AVERAGE AGE	-0.011	.190**	0.060	1															
		0.728	0.000	0.054	0.000															
5	Listed	0.060	.400**	.103**	.131**	1														
		0.050	0.000	0.001	0.000	0.000														
6	Size	-.128**	.315**	.127**	.105**	.245**	1													
		0.000	0.000	0.000	0.001	0.000	0.000													
7	Leverage	-0.013	0.010	-0.018	-0.027	-0.035	0.020	1												
		0.686	0.736	0.569	0.376	0.256	0.520	0.000												
8	Sales Growth	-0.009	-0.036	-0.023	0.036	-0.024	-0.042	-0.001	1											
		0.781	0.246	0.452	0.239	0.447	0.171	0.982	0.000											
9	ROA	0.051	0.019	0.010	0.005	0.034	-0.032	-.063*	-0.017	1										
		0.099	0.537	0.754	0.873	0.271	0.302	0.041	0.580	0.000										
10	Extraction	0.042	.080**	-0.025	0.035	0.057	.092**	-0.010	-0.006	0.036	1									
		0.173	0.010	0.420	0.257	0.066	0.003	0.742	0.848	0.251	0.000									
11	Oil	0.033	0.042	-0.011	0.007	-0.010	-0.028	-0.012	-0.008	0.002	-0.045	1								
		0.293	0.175	0.723	0.814	0.744	0.372	0.710	0.801	0.956	0.143	0.000								
12	Automotive	0.010	-0.037	-0.052	0.010	0.007	-0.011	0.050	-0.012	-0.030	-.070*	-.085**	1							
		0.738	0.237	0.091	0.735	0.823	0.729	0.104	0.700	0.336	0.023	0.006	0.000							
13	Electricity	0.033	-0.001	-.072*	-.066*	0.006	-0.004	-0.013	-0.011	0.010	-.063*	-.075*	-.117**	1						
		0.292	0.986	0.020	0.032	0.856	0.896	0.665	0.727	0.739	0.042	0.015	0.000	0.000						
14	Retail Trade	-.063*	-.067*	-0.014	-0.047	-.098**	-.139**	-0.022	-0.015	0.013	-.108**	-.129**	-.201**	-.179**	1					
		0.042	0.029	0.658	0.131	0.002	0.000	0.483	0.639	0.667	0.000	0.000	0.000	0.000	0.000					
15	Transportation	-0.019	0.055	.077*	0.030	.070*	.069*	-0.008	-0.006	0.059	-0.039	-0.046	-.072*	-.064*	-.110**	1				
		0.548	0.073	0.013	0.330	0.024	0.026	0.793	0.835	0.058	0.211	0.133	0.019	0.037	0.000	0.000				
16	Telecommunic.	0.005	-0.046	-0.007	0.017	-0.051	-0.002	-0.023	0.056	-0.036	-.108**	-.130**	-.202**	-.180**	-.308**	-.111**	1			
		0.868	0.134	0.809	0.592	0.096	0.939	0.459	0.073	0.244	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
17	Consulting	-0.021	.071*	.082**	0.048	.144**	.155**	0.041	-0.014	-0.025	-.083**	-.100**	-.155**	-.138**	-.237**	-.085**	-.238**	1		
		0.501	0.022	0.008	0.123	0.000	0.000	0.186	0.647	0.415	0.007	0.001	0.000	0.000	0.000	0.006	0.000	0.000		
18	Business Support Services	0.034	-0.013	0.047	-0.028	-0.056	-.061*	-0.007	-0.006	0.036	-0.034	-0.041	-.064*	-0.057	-.098**	-0.035	-.099**	-.076*	1	
		0.270	0.674	0.126	0.359	0.072	0.050	0.827	0.848	0.243	0.265	0.181	0.037	0.063	0.001	0.253	0.001	0.014	0.000	
19	Healthcare	0.021	0.024	0.019	0.031	-0.058	-.067*	-0.012	-0.003	0.010	-0.016	-0.019	-0.030	-0.027	-0.045	-0.016	-0.046	-0.035	-0.015	1
		0.490	0.445	0.543	0.311	0.059	0.030	0.710	0.931	0.740	0.607	0.536	0.335	0.391	0.142	0.597	0.140	0.256	0.638	0.000

** Correlation is significant at the 0.05 level (2-tailed).*
*** Correlation is significant at the 0.01 level (2-tailed).*
Note: The first number is the correlation coefficient. The second number is the p-value of significance of the correlation coefficient.
Source: own elaboration.

Table 7. Results for the model Logit

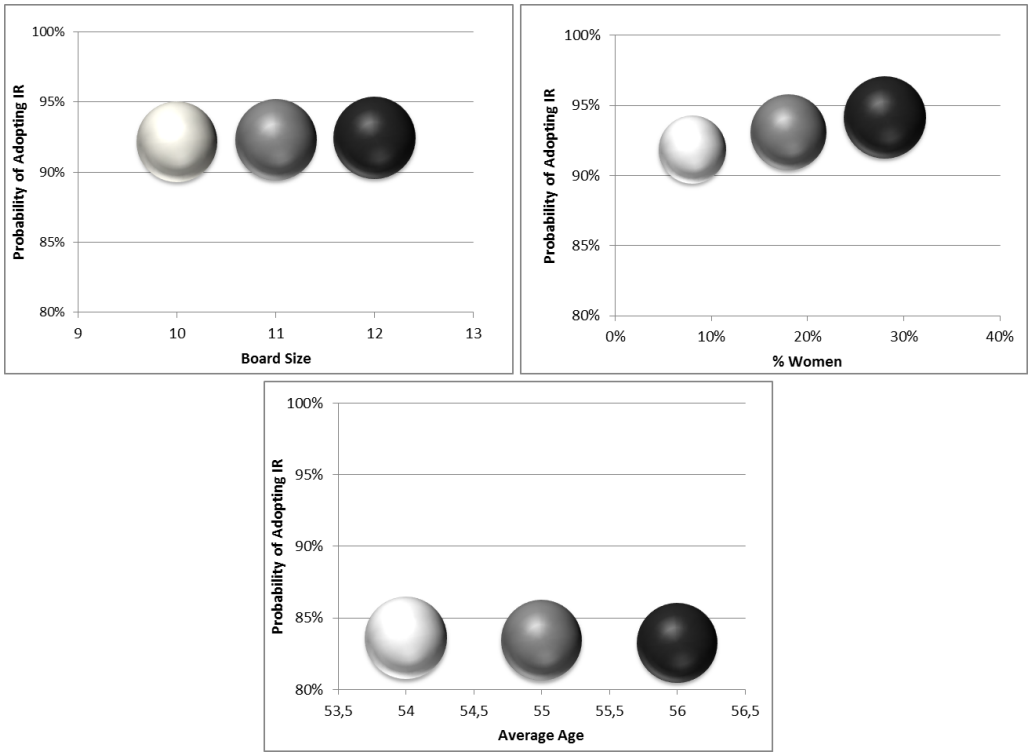
	B	*S.E.*	*Wald*	*Gl*	*Sign.*	*Exp(B)*
Board Size	.019	.015	1.659	1	.198	1.019
% Women	.018	.006	9.032	1	.003	1.018
Average Age	-.012	.021	.343	1	.558	.988
Listed	.724	.281	6.643	1	.010	2.063
Size	-.748	.143	27.313	1	.000	.473
Leverage	.000	.001	.033	1	.855	1.000
Sales Growth	.000	.003	.019	1	.889	1.000
ROA	.013	.009	1.957	1	.162	1.013
Automotive	.112	1.249	.008	1	.929	1.118
Bus. Supp. Serv.	.046	1.318	.001	1	.972	1.047
Consulting	-.269	1.254	.046	1	.830	.764
Electricity	.337	1.252	.072	1	.788	1.400
Extraction	.784	1.306	.361	1	.548	2.191
Oil	.350	1.277	.075	1	.784	1.418
Retail Trade	-.758	1.235	.377	1	.539	.469
Telecommunic.	-.057	1.220	.002	1	.962	.944
Transportion	-.685	1.412	.236	1	.627	.504
Costant	2.277	1.784	1.630	1	.202	9.750

Source: own elaboration.

Data analysis went ahead transforming the Logit results to probability terms. That is, the probability to adopt an IR compared to the average value was calculated for each independent variable and then the variations were determined in terms of probability following an increase or decrease in the average value of these variables.

The graphs below clearly show - for each variable - the variation of the probability to adopt an IR as board characteristics vary.

Figure 1. Probability of adopting IR compared to independent variables



Source: own elaboration

These results show that companies with a larger BoD are 1.02 times more likely to adopt IR compared to companies with a smaller board, Expo(B)=1.02. Those boards with eleven members have a likelihood of 92% to adopt IR as disclosure tool and with one extra board member, the likelihood increases by 0.27%. Adding women to the board results in an increase of the probability of a company adopting IR (odds ratio=1.018, p<.005). Companies, where women represent 18% of board members, record a 93.09% probability of adopting IR and it increases by 2.32% following a 10% rise of female board members. An average age of 55 corresponds to a probability of 83.44% which goes down to 83.27% when the average age is one year older, i.e. 56 years old.

5. CONCLUSIONS AND IMPLICATIONS

Over the last few years, increasing numbers of companies have been giving more attention to

processes that create value. They have voluntarily decided to adopt IR which is an efficient disclosure tool used for communicating with stakeholders as well as being an accounting tool for measuring a company's social sustainability and economic growth in the medium and long-term. IR, then, is a form of communication made up of numbers and qualitative information with the aim of keeping stakeholders up to date. This paper's objective is to analyse how certain characteristics of board composition influence its decision to adopt IR. The study examined 1,047 European companies from different sectors for the year 2015.

The results highlighted a positive relationship between adopting IR and the size of the BoD and female board members. Companies with larger boards are more inclined to adopt this new document because they can count on greater resources for sourcing and publishing this data (Lev, 2004). They are also more likely to publish non-financial data in order to satisfy investors' requests for information (Garcia-Sanchez, 2013).

Promoting gender diversity on the board is likely to impact positively on the voluntary provision of holistic information and thus improve stakeholder engagement. This effect is generalised, whereby reducing the imperative to mandate such disclosure, as well as the influence of legal and cultural systems that characterise the company's country of origin (Fernandez-Reijo *et al.,* 2014).

The research showed a significant relationship between the average age of the BoD and IR.

Our findings present implications both from the theoretical and practical point of view. On a theoretical level, the study confirms that board diversity needs to be analysed more in detail, because of its contribution to company's transparency. Moreover, the results provide to corporate governance standard setters and regulators a useful insight of the important distinction among various board members' features.

6. LIMITATIONS AND FUTURE AVENUES OF THE RESEARCH

The study has several limitations:

- Other variables capturing different aspects other than corporate governance could be included.
- Different factors, such as strategy decisions, communication policies and regulatory/legal backgrounds, could be considered.
- The analysis could be conducted on a wider sample.

We believe that a deeper understanding of the factors influencing the decision of adopting IR is essential for academics, companies and - especially - policy-makers, considering that this kind of disclosure develops the integrated thinking, improves the quality of information available to the providers of financial capital.

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