Università degli Studi di Ferrara

DOTTORATO DI RICERCA IN

"ECONOMIA E MANAGEMENT DELL'INNOVAZIONE E DELLA SOSTENIBILITÀ"

CICLO XXX

COORDINATORE Prof. Stefano Azzali

ESSAYS ON CORPORATE GOVERNANCE, DIVERSITY AND CORPORATE SOCIAL RESPONSIBILITY

Settore Scientifico Disciplinare SECS-P/07

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Anni 2014/2017

Dichiarazione di conformità

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Ciclo di Dottorato: 30
Titolo della tesi: Essays on Corporate Governance, Diversity and Corporate Social Responsibility.
Titolo della tesi (traduzione): Tesi in inglese: traduzione in lingua italiana – Governo societario, Diversità e Responsabilità sociale d'impresa.
Tutore: Prof.ssa Veronica Tibiletti
Settore Scientifico Disciplinare: SECS-P/07
Parole chiave della tesi (max 10): Gender Diversity, Corporate Social Responsibility, Corporate Governance, Board of directors' diversity, Board of Statutory Auditors' diversity, Earnings Management, Impression management, Visual images, Graphs, Value Relevance.

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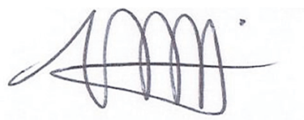

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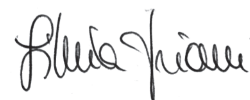

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Introduction

My thesis is based on my studies at the University of Ferrara and the University of Parma. As a PhD in Economics and Management of Innovation and Sustainability, I have devoted the last three years to studying the issues of gender diversity, corporate social responsibility, corporate governance and financial accounting. The following three papers represent the culmination of this scholarly research:

1. Women on the Board of Directors and Gender Policies in Corporate Social Responsibility Reporting [Presented at VIII Financial Reporting Workshop, 2017]
2. Board of Directors and Board of Statutory Auditors Diversity and Earnings Management: Evidence from Italy [Presented at VIII Financial Reporting Workshop, 2017] [Published. Journal: "Corporate Board: role, duties and composition"]
3. Socio-environmental information and graphs' distortion: can they impress investors and manage their decisions? [Version reviewed after the conference: European Accounting Association Conference, 2017]

Equality between men and women is a fundamental value that European Union (E.U.) has been trying to accomplish since 1957 with the Treaty of Rome and the introduction of equal pay for men and women. The European Union has always been at the forefront in fighting for equal opportunities, especially for gender equality, through the implementation of initiatives, strategies and directives.

In this regard an interesting report is the "Strategies for equality between women and men 2010-2015", a strategic commitment which enumerates policy areas such as equal economic independence, equal pay, equality in decision-making, dignity integrity, gender-based violence and finally gender equality in external actions.

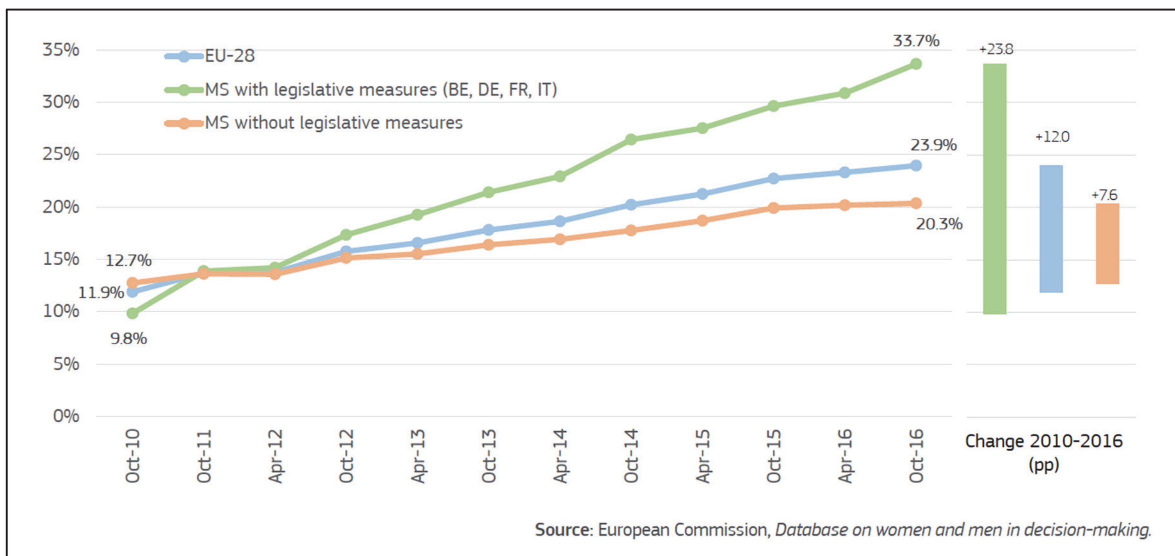
The E.U. claims that the equal gender participation in the decision-making process is a value and an issue of justice that has a large impact on society in terms of growth and improvement. Gender roles influence education, career paths, work environment, family structure, society and community.

At general level, many steps have been made to close the gap between women and men in the E.U. workforce; in 1998 52% of women participated in the workforce, and today that number is close to 60%, with a goal of 75% by 2020.

The topic of the promotion of women in the decision-making process has been addressed at the governmental level with a specific focus on the board of directors (BoD) and audit committee.

An interesting study about the presence of women within the BoD of European firms was conducted by the European Professional Women's Network in 2008. This paper divides 17 countries into 4 categories: the first includes countries that require at least one woman on board (Scandinavian Countries); the second includes countries with above average representation (Netherlands, The U.K., Ireland and Austria); the third category is composed of countries with slightly lower averages (Germany, France, Spain and Greece); and the final category includes countries with the lowest (Italy and Portugal).

Despite the disheartening situation illustrated above, many European countries made steps towards increasing the equality within their boards. To this point, a monitoring study from the European Commission, *Database on women and men in decision-making (2017)* shows a big change from 2010 to 2016.



As illustrated in *Table 1*, the share of women on boards is 11.9% in 2010 and 23.9% in 2016. The main reason of this big improvement is due to the Law on Gender Quota enacted by many European countries. Indeed, since 2010, the proportion of women on boards in countries with legislative measures (Norway, Finland, Spain, France, Netherlands, Belgium and Italy) has risen from 9.8% to 33.7%, In contrast, countries without the law experienced a much smaller rise: from12.7% to 20.3%.

Focusing specifically on Italy, Parliament introduced Law 120/2011 to promote gender balance within governing boards of listed companies on regular markets, and of non-listed

companies controlled by the government. The Law states that Boards must be formed such that the less-represented gender obtains a minimum number of seats for three consecutive mandates from one year after the entry in force of the Law (2012 in Italy). At first renewal, one fifth of board seats are reserved for the less-represented gender, while at the second and third renewal, the quota increases to one third.

Even though the Law represents the main step of changing, the European Commission attempts to improve the gender balance through a multifaceted approach: with not only regulatory legislation and directives but also voluntary policies and specific initiatives.

Thus, the topic of gender equality concerns the social sphere, involves voluntary information and the corporate social responsibility of firms. Academic research on gender diversity and corporate social responsibility reveals a positive association between the presence of women on boards and the level of sustainability and economic growth (Bear et al., 2010; Galbreath, 2011; Ben-Amar et al., 2015; Byron and Post, 2016; Landry et al., 2016).

Moreover, studying the characteristics of boards is important because directors make decisions that affect local communities and national economies. The BoD selects the CEO, makes decisions on executive compensation, advises management, and oversees financial and non-financial reporting initiatives such as corporate social responsibility and sustainability.. Despite an extensive literature on the subject of board diversity, empirical evidence supports differing conclusions.

In the light of the above considerations, and the importance of studying gender equality, the ***first paper*** in my dissertation investigates whether the presence of women on the BoD affects the disclosure of gender policies within the corporate social responsibility reports. Since a big change in gender diversity has been noted from recent years, the paper focuses on a sample of Italian listed companies from 2010 to 2015. In doing so, I investigate the dynamic between the increased presence of women and actions made by women as members of boards.

This paper tests the association between presence of women and gender policies relying on two theories about gender identity and management style: Social Identity Theory and Self-Schema Theory. Numerous studies deal with the problem of management style and contribution that man and women produce when they hold specific roles within boards and the firm.

Women on boards bring different perspectives to the difficult issues facing today's corporations and it is widely believed that diversity of thought results in better decision-making and more attention to conflicts (Brown et al., 2002).

Some empirical evidence suggests that women generally are more risk averse, cautious, and ethical than men (Powell and Ansic, 1997; Gold et al., 2009).
Francoeur et al. (2008) suggest that ‘‘women (like external shareholders, ethnic minorities, and foreigners) often bring a fresh perspective on complex issues, and this can help correct informational biases in strategy formulation and problem solving.’’ Women display participative leadership and collaboration skills (Eagly and Johnson 1990), and generally hold their organizations to higher ethical standards (Pan and Sparks 2012). Women have been always occupying roles that involve domestic activities (e.g., cooking, provision of emotional support) and the associated skills and values become stereotypes of women and are incorporated into the female gender role. Stereotypes introduced from the childhood are bolstered in the work place; stereotypes threaten to discourage women to achieve roles that are usually held by men. Since women were excluded from corporate boardroom for many years (Becker, 1964) and because of sexist attitude women are not genetically predisposed to serve in top management roles (Hoobler et al., 2011), the present study investigates the specific role occupied by the women on board, specifically the CEO and the chairman in order to understand what women do to help other women in terms of gender policies when they are on top management.
Results show that the presence of women on the BoD, specifically in the role of chairperson, is positively associated with the implementation of gender policies. Results highlight the importance of having women in leadership roles on the board for firms that care about gender equality and want to spread that information to their stakeholders through corporate social responsibility reporting. Having more women as members of the same group, in this case the BoD, influences the decision-making process. Furthermore, women pay more attention to conflict management, are more ethical and more aligned with corporate social performance, and this has a role in the gender reporting. Women also believe in these values when they are in the top position of chairperson, paying attention to gender policies. Results about women as CEO show different implications; the fact that the position of CEO is usually a male job leads our results to show a non-significant perception of the female problems and gender policies.
The concept of equality is opposite to the one of diversity, but many studies investigate the topic of diversity in terms of gender, age, culture, level of education, professional background and expertise (Williams and O’Reilly, 1998; Erhardt et al., 2003; Adams and Funk, 2012; Milliken and Martins, 1996) to understand and reach the level of equality. An extensive body of research considers the characteristics of diversity within BoD and aspects of governance such as firm performance and earnings management (EM) (Adams and

Ferreira, 2009; Carter et al., 2010; Haslam and Ryan, 2008; Xie et al., 2003; Ebrahim, 2007; Arun et al., 2015; Kyaw et al., 2015). These analyses are useful for people to understand behavior and for companies to understand and improve the governance.

The issues relating to good governance have long been the subjects of research regarding the importance of proper decision-making and controlling boards. An important theory at this regard is agency theory (Jensen and Meckling, 1976), which models opportunistic managerial behavior and compensating governance mechanisms. The first and most important is the BoD, along with the audit committee and the board of statutory auditors (BSA) for the Italian firms. These latter two are in charge the quality and control of corporate financial reporting; therefore, the individual characteristics of its members have a relevant impact on the decisions they make and the monitoring process.

Since the results of prior studies in this area are inconsistent, the ***second paper*** investigates the effects of diversity between the BoD and the BSA on EM practices. A diverse board can enhance the quality of a board's decision-making and monitoring functions because diverse groups are less likely to take extreme positions and more likely to engage in higher-quality analysis (Wiersema and Bantel 1992; Milliken and Martins, 1996; Adams and Funk, 2012; Larkin et al., 2013).

Inspired by the positive contributions of diversity to corporate governance, this paper re-examines some variables related to the BoD that have been already tested in literature, such as the percentage of women on the board, the level of education and financial expertise. Moreover, it contributes to the literature on the diversity of the BSA. Taking into account the positive effect of the Italian Law 120/2001 in terms of gender balance, the peculiarity of separation between management and control provided by the Italian governance system and again, the positive influence of diversity in terms of reduction of conflicts, increasing transparency and monitoring, we expect that diversity on Boards curbs EM. Results show a positive association between board expertise and EM, indicating that firms are more prone to EM when at least one board member is a professional accountant. However, results show a negative association between EM and two proxies for diversity within the BSA: the presence of a female and accounting expertise. Focusing on the control function, the conclusion represents a first step for future studies control systems and, in particular, the diversity of its members.

Manipulation of information could occur not just at a mandatory level, as in the case of earnings, but also at a voluntary level. The role of voluntary information as extra-information that reduces the agency problem and opportunistic behavior has been established by previous research, but there is still a lack of studies on the importance of non-financial information

serving a monitoring role and the aim that preparers of sustainability reports want to achieve through voluntary disclosure.

Leafing through corporate sustainability reports, I noticed that a significant portion of this voluntary report is comprised of images, graphs and drawings. This begs the question: why are these reports full of visuals, and why are financial reports not, and; what is the purpose of visuals tools?

An increasing number of accounting papers devote their attention to visual images like pictures, graphs and drawings (Davison, 2007, 2009, 2011; Parker and Guthrie 2009; Cho et al., 2012) examining how visual tools, like graphs are distorted, so that the information they convey result favorable for the company disclosing it (Beattie and Jones, 1992; Jones, 2011; Cho et al., 2012).

Some studies reveal the use of visuals for a legitimacy purpose (Suchman, 1995) or to impress the readers (Hrasky, 2012; O'Donovan, 2002). However, few, if any studies have considered how readers react to a possible distortion of visuals.

As Merkl-Davies and Brennan (2011) claim, if managerial intent is to impress the readers, then the receiver should respond to this impression management. Inspired by this last consideration and the lack of empirical studies on the readers' reaction to the visuals within socio-environmental reports, the ***third paper*** attempts to fill this gap in literature. Starting from studies on the impression management perspective, this paper conducts an empirical study on social and environmental reports of Italian listed firms that involve both graphs and narrative information. Specifically it investigates the reader's reactions to the use of graphs by focusing on value relevance effects, reflective of the investors' reaction to the use of social and environmental information (Clarkson et al., 2008) and the graphs' distortion (Beattie and Jones, 1997). Moreover, since the analysis is conducted in the period from 2004 to 2013, and includes the external shock of the financial crisis, the paper assumes that the relevance of such information could change during this period (Devalle, 2012).

Results on the pre-crisis period show that non-financial information is influential, while the presence of graphs is not that statistically significant for readers (investors). Even though the literature devotes ample space to graphs' distortion as an impression management technique (Beattie and Jones, 1992; Jones, 2011; Cho et al., 2012) the distortion plays a less significant role on investors' decision-making processes when compared to social and environmental information. During the financial crisis, the level of significance of environmental information seems to increase under certain conditions, and visual tools show incremental value relevance. In sum, non-financial information (especially environmental information)

is able to impress investors because the global financial crisis changed investors' perspective on the decision-making process: from a short-term vision to a medium-long term period.

Women on the Board of Directors and Gender Policies in Corporate Social Responsibility Reporting

Abstract

Inspired by the promotion of gender balance in governing bodies of listed companies in Europe, this study seeks to understand whether the presence of women on the board of directors with different levels of responsibilities is associated with the disclosure of gender policies in corporate social responsibility reports. We investigate the gender balance in governing bodies through the lens of two theories: 1) social identity theory to learn about the women role in a group and 2) gender self-schema to learn about the individual role of women.

Using data of Italian companies listed on the Milan Stock Exchange from 2010 to 2015, we find that the percentage of women on the board of directors is positively associated with the implementation and disclosure of gender policies. Consistently with the social identity theory, we show that having more women as members of the same group influences the decision-making process. We also find that the presence of women in the role of Chairperson is positively associated with the implementation and disclosure of gender policies. Consistently with gender self-schema, women believe in their values, ethic and attention to conflict management when they are in the position of Chairperson, promoting gender policies.

We contribute to social identity theory showing its application also in the group of boards of directors and with the minority of women. We contribute to self-schema showing that the gender self-schema has a significant impact in the position of Chairperson. Thus, future research analyzing decision-making in the board of directors should consider these theories. This study offers new insights to firms. Increasing the presence of female, especially in the role of Chairperson helps firms promoting gender policies and their disclosure outwards.

Keywords: Gender Diversity, Corporate Social Responsibility, Corporate Governance

1. Introduction

The objective of this research is to analyze the gender policies in corporate social responsibility reports in the presence of women on the Board of Directors (BoD) with different level of responsibilities. The presence of females within the bodies of administration and control has been the subject of studies and debates at the governmental and academic level for many years in all developed countries. The European Union perceives the importance of the topic and stimulates gender diversity within organizations and corporate governance structures (European Union, 2012). Several European Union Member States have already legally established quotas to be achieved in the composition of their BoDs for specific types of companies. Such is the case of a quota of 40 percent, for example, in Norway, Finland, Spain, and France, or approximately 30 percent, for example, in the Netherlands and Belgium (Bianco et al., 2015). In particular, Italy has enacted a national Law that, in summary, requires for listed companies the appointment of a minimum number of women as members of the BoD within specific deadlines. Our study relies on the Italian setting given that the implementation of the national regulation let Italy pass from the ranks of the "laggards" where women represent on average less than 2 percent of BoD members to one of the countries with an above-average number of women on BoDs. Thus, we have a large time variation and a setting where the issue is very sensitive.

The existing literature has investigated the topic from different perspectives. Some authors, for example, link the operating performance and firm's efficiency with board diversity (e.g., Erhardt et al. 2003) and with board gender diversity (Daily et al., 1999; Kanter, 1977). Other studies focused on specific characteristics of women in the top position, highlighting their skills as decision maker and in conflict resolution (Burke et al., 2006; Morrison et al., 1987, 1992), and the different approach to decisions compared to men (Adams and Funk, 2010). Another stream of studies has investigated gender board diversity and corporate social responsibility (Byron and Post, 2016). Our research starts from this last stream of the literature. Our hypothesis narrows the study on the relationship among the presence of women on the BoD, the role of women as CEO and Chairperson and the presence of gender policies within the corporate social responsibility reports. We consider gender policies based on information about gender formal commitment and initiatives.

We develop our hypotheses based on two theories (Terjesen et al. 2009): social identity theory at the BoD level and theory on self-schema at the individual level (top position of Chairperson of the BoD and CEO). We decided to use two different theories to capture the behavior at the group level and at the individual level. We use social identity theory because

phenomena cannot be explained only in the light of a single individual but needs to be considered at group level, while we rely on self-schema to appreciate the differences on individual characteristics of women.

We contribute to social identity theory by investigating the minority subgroup of women in the decision-making at the BoD level. Given that the prior literature underlines women's attitude to solving conflicts among minority group members, their values being aligned with corporate social performance and ethical conduct, we show how women help solve these conflicts through the promotion of gender policies related to their group of identity.

We also contribute to gender self-schema investigating the effect of the type of position in the company (CEO or chairperson) of women at the individual level on CSR gender policy. We show that women in the top position run the business differently, based on their values and self-schema. We show that women in the top position drive the promotion of gender policies if they rely on female self-schema, whereas they do not significantly promote gender policies if they rely on the performance of male self-schema related to the job. Women in the position of chairperson have a positive association with gender policy reporting because they see the prevalence of female schema on job schema, while women in the position of CEO do not have this relationship.

Results based on social identity theory are robust to the counterfactual explanation that only BoDs with a critical mass of women, and only the group of people who know each other, have a role in BoD decision making. The results on the role of the chairperson relying on self-schemas are robust, excluding observations with a woman who also has the role of CEO. We also perform a set of robustness tests to reduce endogeneity issues, using a change model and a difference-in-difference model with a Spanish control sample.

Looking at the practical implications, the Italian Gender Quota Law has increased the percentage of women on boards. This requirement has had a positive effect on the sensitiveness about the topic of gender equality because companies with a high percentage of women on boards care about the promotion of gender policies. Firms can learn from this study that it would be helpful having not only more women on the BoD but also a woman in the role of chairperson.

2. European and Italian regulation of gender quota for BoDs

The measures enacted by the different European Member States on the matter of gender imbalance on corporate boards can be divided into two categories: voluntary initiatives and

regulatory initiatives introduced by national legislators. The first category includes the entire range of initiatives adopted by market actors themselves through the incorporation of recommendations in companies' self-regulatory codes, the subscription of letters of intent on the part of most companies, and the adoption of good business practices. The second category, however, can be distinguished in terms of the nature and size of the target companies, the level of constraints introduced, the scope of the objectives to be achieved, the time within which these are to be achieved and finally the type of penalties non-complying companies may incur, or alternatively, in terms of the advantages they obtain when they adapt to the standards required by law.

Specifically, on the issue of the lack of women on BoDs, in many European Union countries, we see the enactment of both categories mentioned above. Despite the voluntary measures having the advantage of being more flexible, they have not been able to significantly improve the condition of women's representation in decision-making roles. This is what emerges from the European Commission (2012), which noted that no country, in which only voluntary initiatives have been adopted, has reached the threshold of 30 percent of female representation in decision-making bodies. To summarize the situation in Europe, it is reported that Norway, Spain, France, Italy, Belgium, and the Netherlands have introduced legally binding norms on gender quotas both for listed and for public administrations and that, among these, Spain and the Netherlands have decided not to provide sanctions in case of non-application of the law. However, Austria, Denmark, Finland, Greece and Slovenia have adopted legal provisions specifically aimed at semi-public companies. Currently, the European Council is examining the proposal of the European Union Commission (2012) on gender equality on boards, which introduced the following gender quota: the less represented gender among non-executive directors of listed companies should reach the 40% of presence by 2020, while for public undertakings (over which public authorities exercise a dominant influence) by 2018. The objective is not applied to "small and medium-sized enterprises (companies with less than 250 employees and an annual worldwide turnover not exceeding 50 million EUR) or non-listed companies".

Numerous studies of international organizations have investigated the presence of women in companies, in political entities and in decision-making bodies of businesses. The European Professional Women's Network (EPWN, 2008) analyzed the presence of women on the BoDs of European companies. By examining the top 300 companies in Europe, the 17 main European countries have been grouped into four categories: 1. Pioneers (i.e., Scandinavian countries): almost all companies belonging to this group of countries have at least one woman on the BoD; Norway, Sweden and Finland have on average at least three women on

the BoDs of the companies analyzed. If we consider the countries of the group as a whole, the average rate of women on BoDs amounts to 28.6 percent. 2. Countries "above average" (i.e., the Netherlands, the UK, Ireland, Austria): women represent on average 11.4 percent of BoD members. 3. Countries "below average" (i.e., Germany, France, Luxembourg, Belgium, Switzerland, Spain, Greece): women represent on average 7.3 percent of BoD members. 4. Laggards (i.e., Italy, Portugal): women represent on average 1.8 percent of BoD members.

In Italy, the development of equal opportunities policies started with considerable delay compared to other European countries, mainly due to historical and cultural reasons. Since the 1990s, however, there has been acceleration, substantially favored by the European Union's actions, which resulted in the current Italian legislative framework largely in line with that of other European countries. The poor placement of Italy on the European and international scene seems to be attributed, rather than to an inadequacy of the rules, to a deficit of effectiveness and social internalization of existing provisions (Mirra, 2010). The Italian Parliament has introduced a legislation to promote gender balance in the governing bodies of listed companies on regulated markets and of non-listed companies controlled by the government: the Law 120 / 2011 that came into force on 12 August 2011. This law states that BoDs are to be formed so that the less-represented gender obtains a minimum number of the seats for three consecutive terms from one year after the entry into force of the law (12 August 2012). Thanks to this legislative provision, at the first renewal, a fifth of the seats (20 percent) on the board are reserved for the less-represented gender, while at the second and third renewal, the quota must increase to a third of the members (33 percent). This regulation is based on renewals and not on yearly bases. In Italy, BoDs are renewed every 3 years. Thus, on one extreme, companies that renew the BoD after 12 August 2012 will have a minimum of 20 percent women at the end of 2012, while on the other extreme, companies that renew the BoD in 2012 just before 12 August 2012 can renew the BoD after 3 years in 2015 and have a have a minimum of 20 percent women at the end of 2015.

3. Literature review

3.1. Corporate governance and board diversity

The issue of corporate governance has long been the subject of interest and study by researchers in business administration with regard to the importance of proper management and administration for business success from various perspectives, considering both the

aspects of legislation and self-regulatory codes as well as the characteristics and rules that guide the actions of governing bodies. Some studies have investigated the effect of the composition of the governing bodies with reference to the value of the company, focusing on particular features of the board, such as the number of executive directors (i.e., Agrawal and Knoeber, 1996; Hermalin and Weisbach, 1991; Weisbach, 1988; Kini et al., 1995; Vafeas, 1999; Brick and Chidambaran, 2010).

In recent years, these insights have been pointed in a development-oriented direction to emphasize the importance of the composition of governing bodies in order to determine more accurate and effective business management. To that extent, many contributions have analyzed the relationship between the board diversity, in terms of heterogeneity in the composition of the bodies, and specific business success variables, such as performance (i.e., economic, financial or organizational), market price or value of the company. Often, these studies consider the diversity on boards under different perspectives including gender differences but also differences in terms of age, race, culture, competence, professional background, personal characteristics of managers, etc. (Erhardt et al., 2003; Adams and Funk, 2010; Anderson et al., 2011; Maznevski, 1994; Milliken and Martins, 1996; Boeker, 1997; Watson et al., 1998; Burke, 2000; Fondas, 2000; Kilduff et al., 2000; Timmerman, 2000).

3.2. Gender diversity

Since the 1970s, several works have investigated the issue of gender differences in corporate management bodies (Daily et al., 1999; Kanter, 1977). See Terjesen et al. (2009) for a comprehensive literature review and presentation of theories. As the presence of women on BoDs is still fairly limited (Lee and James, 2007), many studies have focused on the analysis of the causes of this scarce female involvement, such as the social context, the social role of women, the status, the psycho-social processes underlying the ideological construction of a male superiority, and pre-existing social networks (e.g., Hillman et al., 2007; Ibarra, 1993; Smith, 2002).

With regard to the relationship between gender difference on the BoD and company performance, research has not always produced overlapping results and has sometimes highlighted conflicting outcomes; on the one hand, in fact, contributions have revealed positive and negative effects related to the inclusion of gender quotas on corporate boards (Erhardt et al., 2003; Carter et al., 2003; Shrader et al., 1997; Adams and Ferreira, 2009; Jehn and Bezrukova, 2004; Abbott et al., 2012; Haslam and Ryan, 2008).

Studies that indicate a positive correlation between gender diversity and performance justify this beneficial effect considering that the combination of different skills, perspectives and backgrounds that men and women tend to own favors the development of creativity and innovation on a broad spectrum in all company personnel at different levels (Egan, 2005; Rogelberg and Rumery, 1996 Herring, 2009). Finally, some contributions have shown that the presence of women on the BoD may provide a clearer picture of female customers' needs with consequent effects in terms of competitive advantage and business results (Daily et al., 1999; Nkomo and Cox, 1996).
Other investigations introduce further elements of analysis, showing a negative correlation between the presence of women on the BoD and companies' performance, and considering the characteristics peculiar to the companies analyzed, such as organizational problematic situations, risk of crisis, or bankruptcy (Ryan and Haslam, 2005), a context characterized by strong competition (Jehn and Bezrukova, 2004).

3.2.1. Social identity

Social identity theory is underpinned by the notion that collective phenomena cannot adequately be explained by recourse to individual differences or personality traits alone (Chen et al., 2014). Women on the BoD is a collective phenomenon that can be explained with this theory. Prior literature shows that women on BoDs affect problems related to groups of individuals, such as conflict resolution in groups and the change in perspective adding creativity and innovation to traditional groups. The presence of women as a group on the BoD has an effect on different aspects of the BoD work such as greater attention to conflict management (Brown et al., 2002), better understanding of company's problems and their contribution in bringing a different perspective, often wider and more innovative, in relation to the resolution of complex problems (Dewatripont et al., 1999; Westphal and Milton, 2000, Hoffman and Maier, 1961; DiTomaso et al., 2007), greater awareness of the different stakeholders on boards (Adams et al., 2011), and a better understanding and involvement of other types of diversity (ethnic, cultural, etc.), facilitating the resolution of cultural conflicts and adding creativity in problem solving (Burke, 2000; Fondas, 2000; Selby, 2000; Bilimoria and Wheeler, 2000).

3.2.2. Self-schema

The self-schema argument says that an individual promotes actions related to mental models of him/herself. The definition of him/herself is different for each individual and can rely, for example, on one's gender or job.

The literature on self-schemas suggests that individuals develop mental models of their gender and study the usual characteristics of women. Adams and Funk (2010) found that women are less oriented to power than men are; they develop more innovative ways of working, although they are often less secure than men and generally more willing to find solutions to risks. For example, Singh et al. (2008) explored gender differences in education, career profile and experience of the advisors being part of the board after its last renewal, and they concluded that women are more adept at bringing an international perspective and at improving the general level of education and professionalism.

The literature on self-schemas suggests that individuals also develop mental models of the attributes of jobholders (Fiske and Taylor, 1991). To understand the attribute of BoD position for women, we show the basic literature on women's career development. Morrison et al. (1987; 1992) analyze women's career development through interviews on woman executives. They develop a framework based on challenge, recognition and support.[1] This model assumes that all three elements must be present in the same relative proportions over time, balanced to permit and sustain development (Burke et al., 2006). Morrison (1992) proposes that, for women, an imbalance typically occurs such that the level of challenge exceeds the other two components. Burke et al. (2006) study the relationship between the presence of organizational practices designed to support women's career advancement and their work attitudes and satisfaction and their psychological well-being. The research analyzes the data collected from 286 women in managerial and professional jobs, with regard to five organizational experiences: negative attitudes towards women, equal treatment, support, career barriers and male standards. The results show that women reporting more supportive organizational experiences and practices are more engaged in their work, are more satisfied with their job and career, and indicate greater levels of psychological well-being.

[1] The challenge of new situations prompts managers to learn skills. Recognition includes acknowledgement, rewards and resources to continue achieving. Support involves acceptance that helps managers incorporate their career into their lives.

3.2.3. Corporate social responsibility

A specific line of research is directed to correlate gender diversity with some orientation to corporate social responsibility or sustainability. See Byron and Post (2016) for a meta-analysis on this topic.

Some of the more recent studies find a positive effect on corporate social responsibility driven by gender diversity. In chronological order, Bear et al. (2010) explore how BoD diversity affects firms' corporate social responsibility and then how the latter influences corporate reputation. The data show that as the number of women on a board increases, so does the firm's corporate social responsibility: communication barriers come down; the minority voice becomes more assertive and listened. Galbreath (2011) shows that women on the BoD are positively associated with economic growth and social responsiveness because of a better relationship with stakeholders, a higher accountability and better ethical behavior. Literature (Frias-Aceituno et al., 2013; Harjoto et al., 2015; Deschênes et al., 2015; Setó-Pamies, 2015) argues that gender, among other board diversities, seems to be one of the driving factor of firms' corporate social responsibility activities. Literature (Liao et al., 2015; Ben-Amar et al., 2015; Kassinis et al. 2016) finds that corporate social responsibility disclosure related to environment increases with the percentage of women on the BoD. Female directors are more likely to be assigned to and to accept roles on the board that are related to environmental and sustainable development matters, as these types of positions are more closely aligned with their roles in the society. Landry et al. (2016) show that a higher percentage of women on the BoD is associated with the company being more likely to appear on four corporate recognition lists (the Most Admired Companies, the Most Ethical Companies, the Best Companies to Work for, and the Best Corporate Citizens), engaging in efforts that will move the organization to be a better corporate citizen.

4. Hypothesis development

For our first hypothesis, we draw on social identity theory (Tajfel and Turner, 1979), a theory that fits well at the board level (Terjesen et al., 2009). People tend to be more competitive and less cooperative in intergroup than in inter-individual contexts. The group represents the social identity of the individual. Studies on minorities have shown that minority group members have the potential to stimulate divergent thinking in the decision-making process (Moscovici and Faucheux, 1972; Nemeth, 1986; Laughlin, 1992). Gender minority groups have the potential to combine different skills, perspectives and backgrounds (Egan, 2005;

Rogelberg and Rumery, 1996 Herring, 2009; Daily et al., 1999; Nkomo and Cox, 1996). We expect that women as a subgroup on the BoD help in cooperating and promoting gender policies in favor of their group.

We expect that a group of women is able to exert influence on the focal board in corporate social responsibility; they are expected to be able to promote gender policies. Prior studies have highlighted that the presence of women on the BoD as a group is related to greater attention to conflict management (Brown et al., 2002; Burke, 2000; Fondas, 2000; Selby, 2000; Bilimoria and Wheeler, 2000) and better resolution of the company's problems, bringing a wide and innovative perspective (Dewatripont et al., 1999; Westphal and Milton, 2000, Hoffman and Maier, 1961; Di Tomaso, et al., 2007). We expect that the increased capacity of women on the BoD to be able to solve conflicts among minority group members is reflected in their capacity to make the company implement structured policies to solve these conflicts. The first policy that women would promote would be CSR gender policy related to their own social identity.

However, a counterargument can be that organizational problematic situations, risk of crisis, or bankruptcy (Ryan and Haslam, 2005), competition or characteristics of the context (Jehn and Bezrukova, 2004) could prevail in the decision-making process, making it impossible for women to promote CSR gender policy.

Given these different expectations, we present the hypothesis in null form:

H1: The percentage of women on the BoD is not related with the presence of gender policies in the corporate social responsibility reporting.

The gender influence can be at the board level but also at individual level (Terjesen et al., 2009). For our second hypothesis, we draw on gender self-schema, a theory that fits well at the individual level (Terjesen et al., 2009). Generally, female gender self-schemas are largely based on values held by women such as homemaker, affiliation to others, nurturance, deference, and abasement (Konrad et al. 2000). Women in the top position run the business differently, based on their values. Women tend to employ an inclusive and interactive leadership style, relying more on cooperation and collaboration with and among subordinates rather than competition or control (Eagly et al., 1992, Singh et al., 2008; Adams and Funk, 2010). The strategic choices of a top manager are based on his or her personal interpretation, which is a function of his or her experiences, values, and personality (Hambrick, 2007). Accordingly, it is reasonable to expect that top managers exert substantial influence over corporate social responsibility as a strategic course for their firms (Huang,

2013). Nielsen and Huse (2010) apply gender-based differences in leadership theories to the context of gender diversity on the BoD in order to offer new insights as to how gender diversity might influence board processes, dynamics, and task performance. These characteristics of leadership amplify the effects of gender diversity, analyzed before at the board level as well as at the individual level (Nakagawa and Schreiber, 2014). Women in the top position would promote gender policies following their self-schema of values.

However, the literature has also shown that a woman in the top position tends to act as a male using the self-schema defined for the job. The literature on self-schemas suggests that individuals develop mental models of the attributes of jobholders (Fiske and Taylor, 1991). Jobs that tend to be occupied by one gender become associated with that gender. Only women with supportive organizational experiences have a high level of psychological well-being (Burke et al., 2006) and can operate with female self-schema. However, an imbalance typically occurs in the elements of women's career development (Morrison, 1992), and the top positions are mainly accounted for by men. Because men occupy the majority of senior management positions and dominate the applicant pool for those jobs, people tend to envision men as having the appropriate attributes for leadership success (Powell and Butterfield, 2002), and people who reach that position tend to act as men and develop those attributes more consistently with what it means to be male or masculine (Lee and James, 2007). These actions mean that women in the top position have less perception of female problems; they invest in the job as men do, and they do not have an attitude to promote gender policies. Women in the top position are more involved in operations, and pay less attention and effort to social policies, such as gender policies.

Given these different expectations, we present the second hypothesis in null form:

H2: The presence of a woman in a top position is not related with the presence of CSR gender policy in the corporate social responsibility reporting.

5. Method

5.1. Content analysis

We perform a content analysis of the CSR report. We consider a set of public documents: social, environmental, sustainability and integrated reports. We start with a manual content analysis, reading the entire section dedicated to diversity and equal opportunities in these documents. Then, we perform an automatic content analysis searching for words related to

gender and women in other parts of the documents and reading the related content. Then, from this reading, we identify the presence of a CSR gender policy, and we classify it into categories. We use a CSR gender policy definition based on prior literature. Content analysis on gender policy has been conducted since the 1990s. Adams and Harte (1999) identify which companies reported equal opportunities information using content analysis. From a historical point of view, companies have reported in a limited manner concerning women's issues and equal opportunities (Adams et al., 1995; Adams and Harte, 1999). To classify CSR gender policies into categories, we develop a set of keywords (Appendix B). Then, four researchers performed the classification. The average level of agreement is approximately 83 percent.

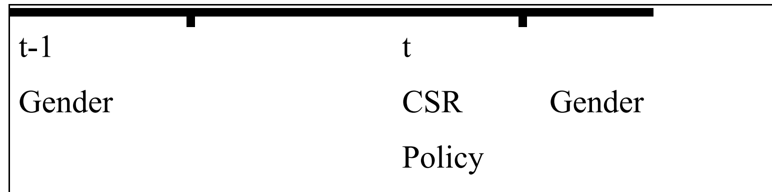
Following the content analysis of Adams and Harte (1999), which splits the equal opportunities information into categories such as commitment, initiatives and specific policies, we consider two types of gender policies: CSR gender formal commitment and CSR gender initiatives.

Our variable of CSR gender formal commitment is intended to capture charters of principles developed by international or national organizations or by company policies that are formally defined. Companies have a formal document in place with a commitment to behave in line with rights defined by the document. An example of these rights is the equal opportunities, considering specifically gender equality (Gray et al., 1995). Gamerschlag et al. (2011) use four variables as keywords for the content analysis, derived from the Global Reporting Initiative framework to measure the corporate social responsibility index. These four variables (diversity, equal opportunities, human rights and discrimination) include gender diversity. Galbreath (2011) includes in the social dimensions of sustainability the work–life balance, human rights and the codes of ethics as key examples. We consider these rights of diversity, equal opportunity, human rights, discrimination, work–life balance, and ethics when related to gender. Moreover, we also consider specific gender rights defined by a set of external organizations. See Appendix B in the note at the table for the references to the websites of these organizations.

Our variable of CSR gender initiatives is intended to capture the courses, charity and funding, events, and other services given in favor of women, beyond the formal commitments. Formal commitment can be only defined in documents but then not implemented, while initiatives are actually implemented. An example of this consideration in prior literature is in Holder-Webb et al. (2009), who include in their corporate social responsibility indicators of the discussion of the company’s participation in humanitarian initiatives.

5.2. Regression model

Our research method uses the following timeline:



We assume that at time t, there is the renewal of the BoD or the decision to stay on the BoD, which decides the number of women on the BoD and in the top position. This decision can be made at any time during the year, and the composition of the BoD is then reported in the corporate governance report of year t-1. Then, these BoDs or top positions make decisions on gender policies, and we assume that at time t, the information on gender policies is disclosed in the CSR report of year t. We investigate both the decision to perform new gender policies and the decision to keep old gender policies.[2]

The hypotheses are tested with the Probit model in Equation (1):

$$Prob[CSR\ Gender\ Policy_{it} = 1] = Probit(\beta 0 + \beta 1\ Gender_{it-1} + \beta 2\ Board\ size_{it} + \beta 3\ Duality_{it} + \beta 4\ CEO\ age_{it} + \beta 5\ Independent_{it} + \beta 6\ Non\text{-}executive_{it} + \beta 7\ Size_{it} + \beta 8\ Leverage_{it} + \beta 9\ Loss_{it-1} + \beta 10\ Sales\ Growth_{it} + \beta 11\ ROA_{it} + e_{it}) \quad (1)$$

Where:

- CSR Gender Policy is 1) reporting of implementation of formal commitments that include gender issue (CSR gender formal commitment); 2) reporting of initiatives for women (CSR gender initiatives); 3) the sum of all gender policies in corporate social responsibility report (CSR gender policy);
- Gender is 1) women on the BoD (H1); 2) two alternative dummy variables for women in the top position: female CEO and Chairperson (H2).

Given that CSR gender policy is a dummy variable, we use a Probit model. We use standard error robust to heteroscedasticity following White (1980).

[2] This decision was taken due to data availability. Given the low number of gender policies reported in the CSR, we decide to keep all typologies of BoD decisions on gender policies and to investigate the introduction of new gender policies in a subsample in the robustness analysis.

We include control variables on BoD characteristics: BoD size, Duality, CEO age, Independent and Non-executive. This is to avoid the effect of gender on the board being captured by other characteristics of the BoD. Good corporate governance mechanisms, in terms of the characteristics of the BoD, should enhance the fairness among the different stakeholders in the business (Collier and Esteban, 1999; Jensen, 2001; Matten and Crane, 2005). We include variables that have been identified as affecting corporate social responsibility in prior studies. See Appendix A for the reference to the literature for each of the variables. Board size and Duality are the usual variables included in the literature on corporate governance quality. The evidence on board size is inconclusive. Larger boards would create coordination problems, collusion and conflicts of interest, which may result in poor performance (Lipton and Lorsch, 1992; Beasley, 1996; Fama and Jensen, 1983), while smaller boards are more efficient in the monitoring role due to better coordination and less free-riding (Jensen, 1993; Lipton and Lorsch, 1992). However, in relation to the advisory role, the literature finds that large and diversified boards generally provide better advice to the CEO (Daily et al., 1999; Dalton and Daily, 1999). Evidence on Duality is more conclusive. When the board chairperson concurrently serves as CEO, the monitoring function of its BoD would be weakened, because decision-making power is not separated from the controlling power. Therefore, we control for Duality, which can affect the quality of reporting. Then, we expect that higher independence (percentage of independent and non-executive directors) is positively associated with reporting quality because it increases monitoring (Kohlbeck and Mayhew, 2004; Klein, 2002).

Finally, we include control variables on firms' characteristics: size, leverage, previous year loss, sales growth and ROA. We control for firm size (Size) motivated by underlying constructs (e.g., information environment, capital market pressure, or financial resources) that predict a positive association between Size and reporting quality (Dechow et al., 2010). We control for Leverage because a higher total debt-to-asset ratio indicates a higher possibility of debt covenant violation, which creates an incentive to reduce transparency (e.g., Francis and Wang, 2008; Dechow et al., 2010; DeFond and Jiambalvo, 1994; Francis and Yu, 2009). We control for the fact that the firm was in a loss position (Loss) the previous year and for the level of operating performance (ROA), given that the evidence that past and present weak performance provides incentives to reduce the quality of reporting is well established (Dechow et al., 2010). We control for Sales Growth as a proxy for complexity and life cycle risk (e.g., Francis and Wang, 2008).

6. Sample

We start with companies listed on the Milan Stock Exchange in the period 2010-2015. We exclude 4 companies listed on overseas markets that have only saving shares on the Italian Stock Exchange because they are not subject to Italian law. We exclude 6 companies suspended or in liquidation given their different priorities in running the business. We exclude 4 non-financial companies that use the two-tier or one-tier system of corporate governance because this has a different mechanism of decision-making. For the same reason, we exclude 48 companies from the financial industry because they often use the two-tier system of corporate governance as well as for the specific industry regulation that comes from the Bank of Italy and Institute for Vigilance on Insurance Firms. We exclude 8 firms that do not respect the legal requirements for women on the BoD. Finally, we exclude 74 firms for which we have not found the corporate governance report online. We obtain a sample of 182 companies for a sample period of 5 years, with an unbalanced sample of 878 observations.

We hand-collect data on gender policy as explained in the section of content analysis. Next, we also hand-collect data for the presence of woman on the BoD and their role, in addition to all the other control variables related to corporate governance, from the corporate governance report.

[insert Table 1 here]

6.1. Descriptive statistics and correlation matrix

Prior research on Norway, the United States, Spain, Denmark, Japan and Australia has shown a low percentage of women on BoDs in the past.[3] In Italy, the mean percentage of women on BoDs has increased greatly in the period analyzed, from a mean of 7 percent in 2010 (consistent with Bianco et al., 2015; Cucari et al., 2017) to a mean of 27 percent in 2014 (Table 2). Looking at the number of firms that had the first BoD renewal after the gender quota law came into force on 12 August 2012, few companies (10) have renewed it and implemented the law in 2012; most of the companies implemented the law in 2013 (53

[3] 1) In Norway, it was 13 percent in 2003 (Nielsen and Huse 2010), 17 percent in 2000-2009 (Bohren and Staubo, 2014), 24 percent in 2006 (Huse et al., 2009), and approximately 24 percent in 2001-2009 (Ahern and Dittmar, 2012); 2) in the US, it was approximately 12 percent (1.3/11.21) in 1998-2002 (Carter et al., 2010), 8.10 percent in 1996 and 10.41 percent in 2003 (Adams and Ferreira, 2009), 12.4 percent in 2002 (Peterson and Philpot, 2007), approximately 17 percent (1.765/10.5) in 2009 (Bear et al., 2010), and 16.4 percent in 2006-2012 (Landry et al., 2016); 3) in Spain, it was 3.28 percent in 1995-2000 (Campbell and Vera, 2008), 3.28 percent in 1989-2001 (Campbell and Vera, 2010), and approximately 8.8 percent in 2007-2010 (De Anca and Gabaldon, 2014); 4) in Denmark, it was 4 percent in 1998-2001 (Rose, 2007); 5) in Japan, it was 3.6 percent in 2007 and 2013 (Nakagawa and Schreiber, 2014); 6) in Australia, it was 2 percent in 2004 (Galbreath, 2011).

companies) and 2014 (103 companies) or 2015 (the rest). The compliance with the regulation, considering the different timeline of BoD renewal as explained in the background of the regulation, implies that all Italian listed companies need to have a minimum of 20 percent women on the BoD by 2015; however, the mean percentage of women on the BoD was already above 20 percent in 2014.

[insert Table 2 here]

Table 3 shows descriptive statistics. Looking at the dependent variables, 15.8 percent of observations have a gender policy, and 13.9 percent at least have a CSR gender formal commitment, while 10.9 percent at least have a CSR gender initiative. We add to Romolini et al. (2014) that find an overall good level of CSR disclosure by Italian listed companies, some evidences on the specific CSR disclosure on gender, much less established. Even if 10-15 percent is still a low percentage of companies, CSR gender policies have been developed in Italy, compared with other countries, and we have enough variation to perform our analysis.

The percentage of women on the BoD is 14.7 percent on average in the entire period. The frequency of women in the top position of CEO is 3.1 percent and in the top position of Chairperson is 4.9 percent, similar to other countries (Nalikka, 2009; Chen et al., 2014; Lee and James, 2007).[4] The 'glass ceiling,' a transparent barrier that allows women to advance only to certain levels in the corporation, is still an impediment to high-achieving women, particularly with respect to becoming a CEO (Daily et al., 1999).

For the control variables, we compare our descriptive statistics in Italy with those in other countries (U.S., Australia, and European countries such as Spain, the U.K., Norway, and Finland) to address the possibility of generalizing the results outside the national context. In Italy, the mean number of directors is approximately 9, with a range between 3 and 21. The regulation requires only a minimum of 2 members, but all listed Italian firms have boards with a higher number. The mean number of members is similar in the United States and Spain and is consistent with other Italian research studies.[5] The mean percentage of firms

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[4] The other studies that empirically investigate female CEOs show mean percentages of firms with female CEOs of 6.48 percent in Finland in 2005-2007 (Nalikka, 2009) and of 2 percent in the U.S. in 1998-2010 (Chen et al., 2014) or 3 percent (17/(17+512)) in 1990-2000 (Lee and James, 2007).

[5] The mean number of members in the United States is 9 or 11 or 12 (in Chen et al., 2014; Carter et al., 2010; Adams and Ferreira, 2009; Vafeas, 1999; Landry et al., 2016), in Spain 11 or 15 (in Campbell and Vera, 2008, 2010; De Anca and Gabaldon, 2014); in Italy 9 (in Bianco et al., 2015), in Norway 5 or 7 (in Nielsen and Huse, 2010; Huse et al., 2009; Ahern and Dittmar, 2012) in Malaysia 7 (in Abdullah et al., 2015), in Australia 6 (in Galbreath, 2011) and in Finland 6 (in Nalikka, 2009).

with a single individual holding the role of CEO and chairperson in Italy is 31 percent, with a high standard deviation of 46.3 percent. This mean percentage is much lower than that in the U.S. but similar to that in Spain.[6] In Italy, the mean age of CEOs is 55 years old, ranging from 36 to 77 years old. The percentage of independent directors is 42.7 percent, and the average percentage of non-executive directors is 71.6 percent, similar to other countries.[7] Other control variables reflect firms' characteristics regarding size, financing situation, performance and life cycle. These findings are consistent with other Italian research.[8]

[insert Table 3 here]

Table 4 shows the univariate correlation between variables. All dependent variables are significantly and positively correlated as expected. Altogether, CSR gender formal commitment and CSR gender initiatives create CSR gender policy. Control variables have a correlation lower than 50 percent, and VIF is well below 5. Thus, we conclude that there are no problems of multicollinearity.

[insert Table 4 here]

6.2. Multivariate results

Table 5 shows the results of testing our first hypothesis where Gender is Women on the BoD with the model in Equation (1). In Model 1, CSR gender policy is CSR gender formal commitment; in Model 2, CSR gender policy is CSR gender initiatives, and in Model 3, CSR gender policy is the sum of all CSR gender policies.

The results show that the percentage of women on the BoD is positively related with the probability of having a CSR gender policy related to CSR gender formal commitment (marginal effect: 14.9 percent; p-value: 0.080) or a generic CSR gender policy (marginal effect: 17.3 percent; p-value: 0.047). We support the social identity theory (Tajfel and Turner, 1979; Chen et al., 2014) finding that gender minority plays a role in the decision-making of the BoD, promoting the reporting of gender policies. We find that women as a subgroup on the BoD help in cooperating and promoting gender policies in favor of their group. We find that the increased capacity of women on the BoD to be able to solve conflicts

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[6] This duality in the U.S. is 60 percent or 68 percent (in Chen et al., 2014; Abbott et al., 2012; Bear et al., 2010), in Spain 40 percent (in Campbell and Vera, 2010), and in Norway 3 percent (in Nielsen and Huse, 2010).

[7] Respectively, 70 percent and 77 percent in Harjoto (2015) and Chen et al. (2014) in the U.S.; 64 percent in Abdullah et al. (2015) in Malaysia; and 4.4/13.1= 34 percent in Brammer and Pavelin (2006) in the UK.

[8] Our sample has a median of total assets of 376 million euro, consistent with Italian data (Moscariello, 2011; Cameran et al. 2015)., 35 percent leverage, 38 percent of firms with a loss in the past year, 6 percent of sales growth (consistent with Corbella et al., 2015) and 2 percent of ROA (consistent with Cameran et al., 2015).

among minority group members (Dewatripont et al., 1999; DiTomaso, et al., 2007) is reflected in their capacity to make the company implement structured policies to solve these conflicts and that these policies are driven by their social identity.

Control variables show that board size, duality, independent, firm size, and ROA are positively associated with the probability of having a CSR gender policy, while leverage, sales growth and prior loss are negatively associated with this probability. We support that large and diversified boards generally provide better advice to the CEO (Daily et al., 1999; Dalton and Daily, 1999). We confirm that higher independence is positively associated with reporting quality because it increases monitoring (Kohlbeck and Mayhew, 2004; Klein, 2002). We also confirm that firm size motivated by underlying constructs (e.g., information environment, capital market pressure, or financial resources) has a positive association with reporting quality (Dechow et al., 2010). We support that leverage because of a higher total debt-to-asset ratio indicates a higher possibility of debt covenant violation, which creates an incentive to reduce transparency (e.g., Francis and Wang, 2008; Dechow et al., 2010; DeFond and Jiambalvo, 1994; Francis and Yu, 2009). Sales Growth, as a proxy for complexity and life cycle risk, is negatively associated with the probability of CSR gender policy, as is leverage (e.g., Francis and Wang, 2008). Finally, firms with a loss position in the previous year do not have incentives to increase the quality of reporting non-financial information (Dechow et al., 2010).

[insert Table 5 here]

Table 6 shows the results of testing our second hypothesis with the model in Equation (1), where Gender is Women in the top position, with two dummy variables, one for female CEOs and one for female Chairpersons. Gender policies are presented with three models as above.

The results show that the presence of a woman in the top position of CEO is not significantly related with the probability of CSR gender policy, while a woman in the top position of Chairperson has a positive association with all types of CSR gender policy, i.e., formal commitments and initiatives. We support the theory on self-schemas based on gender schemas (Konrad et al., 2000), finding that the interactive leadership style, international perspective, and skills on problem-solving owned by women in the position of Chairperson (Eagly et al., 1992; Singh et al., 2008; Admas and Funk, 2010; Nielsen and Huse, 2010; Nakagawa and Schreiber, 2014) help in the issue of gender policies.

However, we do not reject the theory on self-schemas based on job schemas (Fiske and Taylor, 1991). Our results do not show a relationship between female CEOs and gender policies. This can be explained by the women acting as men (Powell and Butterfield, 2002; Lee and James, 2007), which promotes fewer gender policies.
The effect of control variables on CSR gender policy is consistent with Table 5.

[insert Table 6 here]

7. Robustness

7.1. Critical mass

Critical mass theory says that women representation on boards needs to reach a 'critical mass' level (at least 3 women) before it can affect board members' decision-making process and firm performance (Konrad et al., 2008; Torchia et al., 2011; Joecks et al., 2013; Fernandez-Feijoo et al. 2014; Handajani et al., 2014; Cucari et al. 2017).
Our descriptive statistics show that, in the period analyzed, many of the observations (26.65 percent) do not have women on the BoD at all. Thus, 55.47 percent of the observations have a number of women lower than 3. However, the results from regression restricted to this sample of BoDs with 1 or 2 women members confirm that the percentage of women on the BoD is positively related with gender policies (Table 7). We show that, in Italy in small firms with smaller boards, it is the percentage of women on the BoD that matters, not the number. Consistent with Cuadrado-Ballesteros et al. (2017) gender diversity need to be interacted with board size to achieve strong corporate social responsibility performance.
[insert Table 7 here]

7.2. Separating female CEOs and Chairpersons

Companies could have a woman in both the positions of CEO and Chairperson. We repeat the analysis of female CEOs in the subsample of firms with male Chairpersons and the analysis of female Chairpersons in the subsample of firms with male CEOs using the model in Equation (1). This implies that the first regressions are run in a subsample of 835 observations with male Chairpersons, and the latter regressions are run in a subsample of 851 observations with male CEOs. The results are consistent with the main analysis. Thus, the results are not driven by firms with a woman in both positions.

[insert Table 8 here]

7.3. Women on board change

BoDs in Italy are renewed every 3 years. There are no restrictions regarding tenure, and all members can be renewed forever. However, the composition of the board often changes voluntarily. The results can hold only if the group of women is continuously the same in the subsequent years, providing evidence that what is important is the knowledge of each person in the group. However, the results can hold independently by the women on board change, providing evidence that social identity prevails, and it is important to have a group of women on the BoD even if these women do not know each other. The last result would provide evidence that it is the identity of being a woman that prevails on the specific individual characteristics.

We thus repeat the analysis on the subsample of observations where there is a change in women on the board between year t-1 and t-2, considering that our variable of interest is women on board t-1 and we want to investigate its change from the year before.[9] The results are consistent with the main analysis, rejecting the point that it is the personal knowledge of other members that matter.

[insert Table 9 here]

7.4. Endogeneity: change model

To address the potential endogeneity issue, we repeat the analysis using a change model. The reporting of gender policies on CSR can be the results of old decisions of the BoD. We thus analyze whether the results hold if women on the BoD or women in the top positions are related to new gender policies reported on CSR t. We compute the increase in CSR gender policy that assumes a value of 1 when this CSR gender policy t+1 is equal to 1 and CSR gender policy t is equal to 0. Table 10 shows the results of a change model whereby a positive change in gender policies is regressed on the increase in the percentage of women on the BoD and the change in related controls (of which some follow a change specification depending on the nature of the control variable). The results are consistent with the main analysis, reducing the problem of endogeneity.

[9] We acknowledge the limitation that we do not have the name of all the women on the BoD and we cannot see if there is a change of only 1 woman or of the entire group of women.

[insert Table 10 here]

8. Conclusion

The aim of this research is to investigate the current disclosure on gender policies and the presence of women as members of the BoD, examining in particular the possible effect of women in the roles of CEO and Chairperson. In this research, we investigate the relevant number of women within their BoD, pushed from the enactment of Law 120/2011. We study their specific characteristics as managers and as human beings using theories on social identity and self-schemas.

Our results show that the percentage of women on the BoD and the presence of women, specifically the women in the role of chairperson, is positively associated with the implementation of gender policies. Our results highlight the importance of having women as members of the BoD or as chairperson for those firms that care about gender equality and want to spread that information to their stakeholders through corporate social responsibility reporting.

Our study contributes to social identity theory, highlighting that having more women as members of the same group, in this case the BoD, influences the decision-making process. Moreover, our study contributes to gender self-schema theory: women run businesses based on their values of homemaker, deference and abasement, pay more attention to conflict management and are more ethical and more aligned with corporate social performance, and this has a role in the gender reporting. Women also believe in these values when they are in the top position of Chairperson, paying attention to gender policies.

However, the same self-schema theory shows us a different side of the women in the position of CEO; in particular, the fact that the position of CEO is usually a male job leads our results to show a non-significant perception of the female problems and gender policies when the CEO position is occupied by a woman because the job self-schema prevails on the gender self-schema. This is consistent with other research that shows how the market reacts more positively to the announcement of women's appointments as directors when this is related to an independent director position than a CEO (Kang et al., 2010). Moreover, when women need to be appointed to the BoD by law, they are not usually placed in the role of executive directors (Daily et al., 1999). Thus, we can assume that women in the CEO position are not there because of the law on gender quota.

Our study is not without limitations. First, this study is based on a single-country analysis; thus, any generalization needs to consider the similarity in the context studied. Second, we do not have available data for the education level of the women, which could be an interesting moderator variable of the relationship studied here. Third, our research design analyzes the association without intending to imply causality. Fourth, we assume that all the gender policies implemented are then disclosed in the corporate social responsibility report, as we cannot distinguish between implementation and disclosure. Fifth, we rely on a content analysis with specific keywords; other keywords can be added.

Appendix A – Variable Definitions

Dependent Variables	
CSR gender formal commitment	1 if the company has a charter rights that includes gender issue (e.g., Gamerschlag et al. 2011); 0 otherwise.
CSR gender initiatives	1 if the company has courses, events, services, or funding specifically for women (e.g., Holder-Webb et al. 2009); 0 otherwise.
CSR gender policy	1 if the company has at least 1 of the previous variables (CSR gender formal commitment, CSR gender initiatives); 0 otherwise.
Independent Variables	
Women on the BoD	Percentage of women on the board (Huse et al., 2009; Adams and Ferreira, 2009; Harjoto et al., 2015; Ahern and Dittmar, 2012; Bear et al., 2010; Bianco et al., 2015; Bohren and Staubo, 2014; Campbell and Vera, 2008; Campbell and Vera, 2010, Carter et al., 2010, De Anca and Gabaldon, 2014; Galbreath 2011; Landry et al 2016; Nakagawa and Schreiber, 2014; Nielsen and Huse 2010, Peterson and Philpot 2007; Rose 2007).
Female CEO	1 if the CEO is a woman; 0 otherwise (Adams and Ferreira, 2009; Nalikka, 2009; Chen et al., 2014; Lee and James, 2007).
Female Chairperson	1 if the chairpersonnis a woman; 0 otherwise. Prior literature uses the following variable: 1 if there is at least one woman director on the board; 0 otherwise (Abbott et al., 2012; Hillman and Cannella, 2007; Abdullah et al., 2015; Ahern and Dittmar, 2012; Bianco et al., 2015; Campbell and Vera, 2008, 2010; Francouer et al., 2008; Ibrahim and Angelidis, 1994; Kakabadse et al., 2015; Landry et al., 2016; Rose, 2007). We took from this, and we substituted the presence of a woman as general manager with the presence of a woman in the positions of chairperson.
Control variables	
Board size	The number of directors on the board (Huse et al., 2009; Adams and Ferreira, 2009; Abbott et al., 2012; Vafeas, 1999; Nalikka, 2009; Abdullah et al., 2015; Ahern and Dittmar, 2012; Bianco et al., 2015; Boheran and Staubo, 2014; Campbell and Vera, 2008, 2010; Carter et al., 2010; Chen et al., 2014; De Anca and Gabaldon, 2014; Galbreath, 2011; Landry et al., 2016; Nielsen and Huse, 2010).
Duality	1 if a single individual holds the role of CEO and chairperson (Adams and Ferreira 2009; Abbott et al., 2012; Ahern and Dittmar, 2012; Bear et al., 2010; Boheran and Staubo, 2014; Campbell and Vera, 2010; Carter et al., 2010; Chen et al., 2014; Nielsen and Huse, 2010); 0 otherwise.
CEO age	Age of the CEO (Adams and Ferreira, 2009, Bianco et al. 2015).
Independent	Percentage of independent directors on the board (Harjoto, 2015; Vafeas, 1999; Hillman et al., 2007; Abdullah et al., 2015; Bianco et al., 2015; Carter et al., 2010; Chen et al., 2014).
Non-executive	Percentage of non-executive directors on the board (Brammer and Pavelin 2006; Abdullah et al. 2015).
Size	The natural logarithm of total assets at the end of the fiscal year.
Loss t-1	1 if net income t-1 < 0, and 0 otherwise.
Leverage	Total debt scaled by total assets at the end of the fiscal year.
Sales Growth	(Revenues t – revenues t-1) scaled by revenues t-1.
ROA	Ratio of earnings before interests and taxes to total assets.

Appendix B – Keywords

CSR gender formal commitment		CSR gender initiatives	
English description	**Italian keywords**	**English description**	**Italian keywords**
charter of protection of gender dignity and sexual harassment	“regolamento” “tutela della dignità delle donne” “molestie sessuali”	self-defense course for women	“cors- “autodifesa” “donne”
charter of diversity[1]	“carta” “diversità”	Pilates and sport courses for pregnant women	“cors-“ “maternità” “pilates” “sport”
charter of equal opportunity[1]	“carta” “pari opportunità”	course of home planning and sewing*	“cors-“ “pianificazione domestica” “cucito”
charter of labor rights[1]	“carta” “diritti dei lavoratori”	information technology – engineering – continuing education for women (hackathon=hack+marathon, National Women in Engineering Day)	“tecnologi-“ “ragazze“ “cors- informatic-“
charter of “women’s empowerment principles”[4]	“women’s empowerment principles”	charity to national and international no-profit organization projects dedicated to women[6 7]	“beneficenza” “pangea” “gender equality” “nazioni unite”
charter of global compact[2]	“global compact”	funding for research, prevention and free screening related to cancer for women	“sponsorizzazion-” “campagn-“ “prevenzione” “screening” “ricerca” “cancro” “tumore”
charter of Social Accountability 8000[3]	Social Accountability 8000	events for the European project “Women Mean Business and Economic Growth – Promoting Gender Balance on Company Boards”[10]	“Women Mean Business and Economic Growth”
charter of gender key performance indicators developed by the national Chamber of Commerce	“Progetto camera commercio” “indicatori di genere”	events for children of women under house arrest, ex-incarcerated or alone	“donne sole” “ex detenute” “arresti domiciliari” “figli”
charter of national association “Value Woman”[5]	“associato” “Valore Donna”	events for the International Day for the Elimination of Violence against Women	”giornata mondiale” “osservatorio” “violenza sulle donne” “mutilazioni femminili”
code of ethics[1]	“codice” “carta” “etic-“ “sesso”	competition and awards for women entrepreneurship	“concorso” “premio” “imprenditoria sociale al femminile” “donne”
network and mentor group for women[8 9]	“diversit-“ “ruoli di leadership” “mentor” “network”	parking for women	“parcheggi” “rosa” “mamm-“
employee contract with additional maternity help for all women	“un mese” “aggiuntivo” “scelta del punto vendita in cui lavorare” “turni” “part-time””percorso formativo … ripresa lavorativa” “maternità” “lavoro da casa” “aiuti economici”	nurseries, baby-sitter, school agreement*	“asil-“ “baby-sitter” “convenzioni” “scolastic-”

		firm laundry*	“lavanderia aziendale”
		gender report for internal users	“intranet”

Note: all the above keywords found in the corporate social responsibility report for the reporting of actions to be compliant with regulation are not considered in this analysis. We focus on voluntary gender policies.
*The above keywords related to family issues are included only if they help the reconciliation home-work for women; otherwise, generic actions related to family are not considered in this analysis.

[1] We manually read the text to verify that the diversity and equal opportunities also include gender diversity and opportunities.

[2] http://www.globalcompactnetwork.org/en/

[3] https://www.csqa.it/?lang=en-us and https://www.csqa.it/CSQA/Norme/Responsabilita-Sociale/SA-8000#

[4] http://www.weprinciples.org/Site/PrincipleOverview/

[5] http://valored.it/en

[6] http://www.pangeaonlus.org/en

[7] http://www.un.org/sustainabledevelopment/gender-equality/

[8] http://wln.interpublic.com/

[9] https://www.everywoman.com/

[10] http://www.governo.it/articolo/women-mean-business-and-economic-growth-promoting-gender-balance-company-boards

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Table 1 – Sample selection

Description	N
Italian companies listed on the Milan Stock Exchange in the period 2010-2015 Available at http://www.borsaitaliana.it/borsaitaliana/statistiche/statistiche-storiche/statistiche-storiche.htm	326
Delete: companies listed on overseas markets	-4
Delete: companies listed as suspended or in liquidation	-6
Delete: companies with a two-tier or one-tier system (different from the traditional system)	-4
Delete: financial companies	-48
Delete: companies that do not respect the legal requirements for women on the BoD	-8
Delete: companies with lack of data on corporate governance	-74
Number of companies in the sample	182
Number of observations for the unbalanced sample for the period 2011-2015 (2010-2014 for women on the BoD and female CEO or chairperson)	878

Table 2 – Time trend of women on the BoD

	2010		2011		2012		2013		2014	
	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Firms implementing law on women on the BoD										
Women on the BoD	0	0.00	0	0.00	10	0.23	53	0.27	103	0.30
Other firms										
Women on the BoD	170	0.07	174	0.09	164	0.11	125	0.13	79	0.24
Total by year										
Women on the BoD	170	0.07	174	0.09	174	0.12	178	0.17	182	0.27

Table 3 - Descriptive Statistics

Dependent variables	**Mean**	**25 percent Percentile**	**Median**	**75 percent percentile**	**Std. Dev.**	**Min**	**Max**
CSR gender formal commitment	0.139	0.000	0.000	0.000	0.346	0.000	1.000
CSR gender initiatives	0.109	0.000	0.000	0.000	0.312	0.000	1.000
CSR gender policy	0.158	0.000	0.000	0.000	0.365	0.000	1.000
Independent variable	**Mean**	**25 percent Percentile**	**Median**	**75 percent percentile**	**Std. Dev.**	**Min**	**Max**
Women on the BoD	0.147	0.000	0.140	0.222	0.121	0.000	0.714
Female CEO	0.031	0.000	0.000	0.000	0.173	0.000	1.000
Female Chairperson	0.049	0.000	0.000	0.000	0.216	0.000	1.000
Control variables	**Mean**	**25 percent Percentile**	**Median**	**75 percent percentile**	**Std. Dev.**	**Min**	**Max**
Board size	9.638	7.000	9.000	11.000	3.035	3.000	21.000
Duality	0.311	0.000	0.000	1.000	0.463	0.000	1.000
CEO age	55.318	49.000	54.000	62.000	8.793	36.000	77.000
Independent	0.427	0.300	0.400	0.545	0.160	0.111	0.900
Non-executive	0.716	0.600	0.750	0.846	0.151	0.273	0.933
Size	6.217	4.843	5.963	7.347	1.959	1.686	11.796
Leverage	0.351	0.231	0.348	0.487	0.255	-0.575	0.962
Loss t-1	0.379	0.000	0.000	1.000	0.485	0.000	1.000
Sales Growth	0.061	-0.078	0.015	0.999	0.549	-0.998	5.558
ROA	0.022	-0.007	0.031	0.652	0.090	-0.364	0.266

Table 4 - Pearson Correlation Matrix

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	CSR gender formal commitment	**1.000**															
2	CSR gender initiatives	**0.693**	**1.000**														
3	CSR gender policy	**0.926**	**0.808**	**1.000**													
4	Women on the BoD	0.020	-0.038	0.019	**1.000**												
5	Female CEO	-0.014	-0.041	-0.023	**0.122**	**1.000**											
6	Female Chairperson	**0.077**	**0.073**	**0.075**	**0.250**	-0.040	**1.000**										
7	Board size	**0.287**	**0.291**	**0.301**	-0.040	0.008	-0.041	**1.000**									
8	Duality	**-0.177**	**-0.125**	**-0.177**	-0.038	**-0.091**	**-0.118**	**-0.187**	**1.000**								
9	CEO age	-0.013	**0.058**	0.006	-0.033	**-0.088**	0.003	0.015	**0.223**	**1.000**							
10	Independent	**0.269**	**0.288**	**0.315**	**-0.071**	**-0.082**	-0.037	**0.121**	**-0.160**	-0.017	**1.000**						
11	Non-executive	**0.233**	**0.312**	**0.272**	0.014	-0.032	0.014	**0.337**	**-0.104**	**-0.080**	**0.372**	**1.000**					
12	Size	**0.431**	**0.512**	**0.473**	**-0.096**	-0.035	-0.005	**0.487**	**-0.192**	0.055	**0.295**	**0.369**	**1.000**				
13	Leverage	-0.033	**-0.088**	**-0.057**	-0.006	0.021	-0.018	**0.081**	0.019	**0.097**	**-0.139**	**-0.097**	**0.070**	**1.000**			
14	Loss t-1	**-0.056**	**-0.078**	**-0.056**	0.035	0.024	0.008	**-0.075**	-0.018	**-0.070**	-0.017	0.042	**-0.197**	**-0.208**	**1.000**		
15	Sales Growth	-0.045	-0.026	-0.046	-0.026	-0.022	-0.029	0.030	-0.017	-0.027	0.023	0.010	0.016	0.023	-0.018	**1.000**	
16	ROA	**0.103**	**0.104**	**0.115**	0.004	-0.022	-0.009	**0.068**	-0.035	0.048	**0.064**	-0.021	**0.263**	**0.263**	**-0.469**	**0.097**	**1.000**

Correlation is measured by Pearson coefficients. Refer to Appendix A for variable definitions. In bold, coefficient significant at 5 percent.

Table 5 - Multivariate Analysis: women on the BoD

Probit regressions	**Model 1**		**Model 2**		**Model 3**	
	CSR gender formal commitment		**CSR gender initiatives**		**CSR gender policy**	
	Marginal effect	p-value	Marginal effect	p-value	Marginal effect	p-value
Women on the BoD	0.149	0.080	0.004	0.946	0.173	0.047
Board size	0.010	0.003	0.006	0.009	0.010	0.004
Duality	-0.067	0.013	-0.025	0.239	-0.059	0.028
CEO age	-0.0004	0.495	0.003	0.007	0.0003	0.553
Independent	0.248	<0.001	0.073	0.123	0.297	<0.001
Non-executive	0.010	0.628	0.289	<0.001	0.062	0.329
Size	0.043	<0.001	0.046	<0.001	0.049	<0.001
Leverage	-0.054	0.152	-0.181	<0.001	-0.106	0.021
Loss t-1	0.020	0.269	-0.002	0.915	0.025	0.206
Sales Growth	-0.047	0.012	-0.008	0.355	-0.045	0.009
ROA	0.268	0.049	0.338	0.002	0.361	0.011
Pseudo R2	0.288		0.497		0.331	
Number of observations	878		878		878	

P-values are based on asymptotic z-statistic using White (1980) standard error robust to heteroscedasticity. Refer to Appendix A for variable definitions.

Table 6- Multivariate Analysis: women in the top position

Probit regressions	**Model 1**		**Model 2**		**Model 3**	
	CSR gender formal commitment		**CSR gender initiatives**		**CSR gender policy**	
	Marginal effect	p-value	Marginal effect	p-value	Marginal effect	p-value
Female CEO	-0.009	0.881	-0.019	0.714	-0.018	0.778
Female Chairperson	0.087	0.028	0.049	0.079	0.091	0.033
Board size	0.010	0.002	0.006	0.008	0.010	0.003
Duality	-0.066	0.018	-0.022	0.311	-0.059	0.033
CEO age	-0.001	0.512	0.002	0.012	0.000	0.976
Independent	0.245	<0.001	0.070	0.141	0.291	<0.001
Non-executive	0.015	0.860	0.290	0.001	0.069	0.430
Size	0.042	<0.001	0.046	<0.001	0.048	<0.001
Leverage	-0.048	0.269	-0.176	<0.001	-0.099	0.030
Loss t-1	0.022	0.347	-0.0001	0.986	0.027	0.261
Sales Growth	-0.048	0.015	-0.007	0.364	-0.046	0.011
ROA	0.284	0.038	0.338	0.003	0.379	0.008
Pseudo R2	0.290		0.500		0.331	
Number of observations	878		878		878	

P-values are based on asymptotic z-statistic using White (1980) standard error robust to heteroscedasticity. Refer to Appendix A for variable definitions.

Table 7 - Robustness Analysis: restricted sample

	Sample dropping observations with Chair women						**Sample dropping observations with CEO women**					
Probit regressions	**Model 1**		**Model 2**		**Model 3**		**Model 1**		**Model 2**		**Model 3**	
	CSR gender formal commitment		**CSR gender initiatives**		**CSR gender policy**		**CSR gender formal commitment**		**CSR gender initiatives**		**CSR gender policy**	
	Marginal effect	p-value	Marginal effect	p-value	Marginal effect	p-value	Marginal effect	p-value	Marginal effect	p-value	Marginal effect	p-value
Female CEO	-0.013	0.821	-0.020	0.696	-0.021	0.728	-	-	-	-	-	-
Female Chairperson	-	-	-	-	-	-	0.087	0.027	0.049	0.082	0.091	0.032
Board size	0.009	0.010	0.006	0.027	0.008	0.020	0.010	0.002	0.007	0.009	0.010	0.004
Duality	-0.063	0.023	-0.020	0.342	-0.055	0.047	-0.067	0.016	-0.022	0.296	-0.060	0.031
CEO age	-0.001	0.361	0.002	0.018	-0.0004	0.740	-0.001	0.546	0.003	0.008	0.0001	0.986
Independent	0.260	<0.001	0.078	0.100	0.311	<0.001	0.233	0.001	0.073	0.133	0.281	<0.001
Non-executives	0.046	0.578	0.295	<0.001	0.101	0.251	0.022	0.796	0.301	<0.001	0.076	0.388
Size	0.041	<0.001	0.045	<0.001	0.047	<0.001	0.043	<0.001	0.046	<0.001	0.048	<0.001
Leverage	-0.015	0.725	-0.162	<0.001	-0.067	0.149	-0.052	0.241	-0.174	<0.001	-0.103	0.026
Loss t-1	0.014	0.567	-0.001	0.968	0.020	0.416	0.028	0.239	0.002	0.915	0.033	0.175
Sales Growth	-0.043	0.015	-0.006	0.421	-0.042	0.012	-0.048	0.015	-0.007	0.373	-0.047	0.011
ROA	0.259	0.056	0.336	0.003	0.360	0.012	0.303	0.028	0.342	0.003	0.400	0.006
Pseudo R2	0.277		0.485		0.321		0.289		0.500		0.332	
Number of observations	835		835		835		851		851		851	

P-values are based on asymptotic z-statistic using White (1980) standard error robust to heteroscedasticity. Refer to Appendix A for variable definitions.

Table 8 - Robustness Analysis: critical mass

Panel A – Descriptive statistics	**Full sample**		
Number of women on the BoD	**Observations**	**Percentage**	**Women on the BoD - Mean**
0	234	26.65	0.00
1	270	30.75	0.12
2	217	24.72	0.22
3	117	13.33	0.29
4	34	3.87	0.32
5	4	0.46	0.42
7	1	0.11	0.54
8	1	0.11	0.62
Total	878	100	0.15

Panel B	**Sample with 1 or 2 women on the BoD**					
Probit regressions	**Model 1**		**Model 2**		**Model 3**	
	CSR gender formal commitment		**CSR gender initiatives**		**CSR gender policy**	
	Marginal effect	p-value	Marginal effect	p-value	Marginal effect	p-value
Women on the BoD	0.310	0.097	0.030	0.885	0.194	0.360
Board size	0.008	0.070	0.003	0.271	0.006	0.139
Duality	-0.108	0.019	-0.053	0.111	-0.100	0.013
CEO age	-0.001	0.339	0.001	0.168	-0.001	0.503
Independent	0.232	0.001	0.087	0.152	0.208	0.006
Non-executives	-0.165	0.042	0.061	0.463	-0.068	0.450
Size	0.044	<0.001	0.038	<0.001	0.046	<0.001
Leverage	-0.001	0.991	-0.145	<0.001	-0.037	0.470
Loss t-1	0.022	0.370	0.016	0.464	0.016	0.535
Sales Growth	-0.033	0.117	-0.014	0.375	-0.043	0.087
ROA	0.033	0.840	0.276	0.070	0.152	0.385
Pseudo R2	0.334		0.436		0.334	
Number of observations	487		487		487	

P-values are based on asymptotic z-statistic using White (1980) standard error robust to heteroscedasticity. Refer to Appendix A for variable definitions.

Table 9 - Robustness Analysis: change in women on the BoD

	Sample with change in Women on the BoD					
Probit regressions	**Model 1**		**Model 2**		**Model 3**	
	CSR gender formal commitment		**CSR gender initiatives**		**CSR gender policy**	
	Marginal effect	p-value	Marginal effect	p-value	Marginal effect	p-value
Women on the BoD	0.230	0.180	0.081	0.538	0.292	0.097
Board size	0.014	0.069	0.012	0.030	0.013	0.086
Duality	-0.161	0.004	-0.038	0.406	-0.130	0.017
CEO age	0.001	0.765	0.004	0.051	0.002	0.444
Independent	0.271	0.041	0.044	0.666	0.323	0.020
Non-executives	0.006	0.975	0.397	0.026	0.128	0.511
Size	0.047	<0.001	0.055	<0.001	0.052	<0.001
Leverage	-0.023	0.800	-0.332	<0.001	-0.122	0.200
Loss t-1	0.012	0.795	0.008	0.848	0.014	0.771
Sales Growth	-0.030	0.210	0.016	0.297	-0.020	0.401
ROA	0.354	0.243	0.531	0.035	0.534	0.089
Pseudo R2	0.274		0.476		0.303	
Number of observations	261		261		261	

P-values are based on asymptotic z-statistic using White (1980) standard error robust to heteroscedasticity. Refer to Appendix A for variable definitions.

Table 10 - Robustness Analysis: change model

Probit regressions	**Model 1**		**Model 2**		**Model 3**	
	New CSR gender formal commitment		**New CSR gender initiatives**		**New CSR gender policy**	
	Marginal effect	p-value	Marginal effect	p-value	Marginal effect	p-value
Increase in Women on the BoD	0.022	0.048	-0.003	0.688	0.019	0.058
ΔBoard size	-0.002	0.191	0.0005	0.668	-0.001	0.258
Duality	-	-	-0.008	0.362	-0.015	0.218
ΔCEO age	-0.0003	0.407	0.001	0.043	0.0005	0.276
ΔIndependent	0.046	0.270	-0.017	0.434	0.034	0.426
ΔNon-executives	0.015	0.570	0.052	0.129	0.051	0.179
ΔSize	-0.002	0.603	0.019	0.056	-0.002	0.670
ΔLeverage	0.015	0.365	-0.006	0.679	0.020	0.180
Loss t-1	-0.003	0.713	0.003	0.647	0.002	0.805
Sales Growth	0.001	0.646	-0.004	0.224	0.001	0.803
ΔROA	0.041	0.476	0.075	0.181	0.033	0.513
Pseudo R2	0.081		0.144		0.102	
Number of observations	698		698		698	

P-values are based on asymptotic z-statistic using White (1980) standard error robust to heteroscedasticity. Refer to Appendix A for variable definitions. Duality omitted because duality = 1 predicts failure perfectly.

Board of Directors and Board of Statutory Auditors Diversity and Earnings Management: Evidence from Italy

Abstract

The importance of diversity within corporate boards has been demonstrated not only from the literature point of view but also at national and international regulatory level. The present paper focuses on two main boards that characterized the Italian governance: the Board of Directors and the Board of Statutory Auditors, by investigating how characteristics of members are associated with Earnings Management. Starting from a sample of 121 non-financial Italian listed companies, we investigate how firms deal with the opportunistic behavior of Earnings Management, through the appointment of members who are diverse in some ways. Findings overall show that, even though diversity within the Board of Directors is not associated with Earnings Management, the presence of female and member expertise on Board of Statutory Auditors curb earnings management instead. Based on these findings we argue for the need to in-depth studies about other peculiarities of diversity in order to understand the dynamic of the governance and to interpret management behaviors and choices.

Keywords: Board of directors' diversity, Board of Statutory Auditors' diversity, Earnings Management

9. Introduction

The quality of group decision-making is enhanced with diverse opinions. Functionally diverse teams are more innovative, set clearer strategies, are more likely to react to competition, and are quicker to adapt to organizational changes (Wall Street Journal, 2016).

The topic of group diversity has been studied for many years and is still the interest of many authors within different field of research. The concept of diversity is vast. Williams and O'Reilly (1998) define diversity as: 'any attribute that people use to tell themselves that another person is different'. Diversity is traditionally conceptualized in terms of visible differences such as age, gender, and race (Hicks-Clarke & Illes, 2000, Erhardt et al., 2003). However, individuals differ on less visible characteristics such as level of education, expertise and tenure with the company (Thatcher and Jehn, 1998; Tsui et al., 1992; Williams and O'Reilly, 1998).

An extensive body of literature related to the characteristics of diversity in the boards of administration and control has grown, due to the global desire of better governance (Adams and Funk, 2012; Anderson et al., 2011; Maznevski, 1994; Milliken and Martins, 1996; Burke, 2000). The Board of Directors is the most important decision-making body in a corporation; based on the agency perspective, boards are responsible for approving major strategic and financial decisions, thus the characteristic of board members may have an impact on their decisions and on firm performances.

The Audit Committee and the Board of Statutory Auditors (board in charge for the control within the Italian corporate governance) have a fundamental role in ensuring the quality of corporate financial reporting. Many studies on the Audit Committee have revealed that committee's size, independence and meeting frequency affect the quality of financial report (Abbott et al., 2004; Anderson et al., 2004; Lin et al., 2006).

Asserting that diversity on board has only positive or negative impact on firm is not easy, but some authors attempt to investigate and describe benefits and costs of diversity based on physiological studies on human characteristic, cultures, races and background. Starting from the possible benefits and as Ferreira (2010) point out, people from different backgrounds and with different life experiences are likely to approach similar problems in different ways; diverse groups foster creativity and produce a greater range of perspectives and solutions to problems (e.g., Wiersema and Bantel 1992; Watson et al., 1993). Firms benefit from members with different background gaining access to different resources. Not only benefits, but also costs originate from diversity on board: conflicts and lack of cooperation and communication between

the directors, directors unqualified and last but not least, firms incur conflicts of interests from the directors who have more interest in their gain instead of firm's profit (the well-known agency problem). Since member's specific characteristics are considered fundamental to understand the dynamic of boards and the dynamic behind member's behavior, many authors focus their attention on female and male leadership style and personal traits. In terms of gender, women have been part of the minorities group since a long time, they were considered as a discriminated group and they always put more effort to achieve equal opportunity than men did. The presence of women on boards is still limited (Lee and James, 2007; Burgess and Threnou, 2002). Many investigations focus on the causes of this scarce female involvement, such as the social context, the social role of women, the status, the psychosocial processes underlying the ideological construction of a male superiority, and pre-existing social networks (Hillman et al., 2007; Ibarra, 1993; Smith, 2002). Women tend to manifest relatively interpersonally oriented and democratic styles, while men manifest relatively task-oriented and autocratic styles and they act more aggressively than women do (Eagly et al., 2003). Women in social situations smile and laugh more than men, use their bodies more expressively (Anderson and Blanchard, 1982; Carli, 1990; Lockheed, 1985; Eagly and Steffen, 1986; Eagly and Johnson, 1990; Eagly and Wood, 1991, Eagly, 1993), are more risk averse, cautious and ethical than men are (Powell and Ansic, 1997; Gold et al., 2009). Greater presence of female means more attention to conflict-of interest issues (Brown et al., 2002) and leads to better attendance on board meetings (Adams and Ferreira, 2009); all of which suggests that diverse boards are indeed stronger monitors.
Many studies that focus on the effects of members' characteristics on firm performances achieve different conclusions (Erhardt et al. 2003; Haslam and Ryan, 2008; Adams and Ferreira, 2009; Terjesen et al., 2009; Carter et al. 2010; Abbott et al., 2012). Instead, few studies have investigated if and how the specific characteristics of male and female lead to the problems of the well-known earnings management (EM).
Based on the idea that firms choose boards and committees members to minimize their costs and maximize their value (Jensen and Meckling, 1976), this study aims to investigate the effects of Board of Directors (BoD) and Board of Statutory Auditors (BSA) diversity on EM practices. As Fama and Jensen (1983) hypothesize, an effective system "implies, almost by definition, that the control (ratification and monitoring) of decisions is to some extent separate from the management (initiation and implementation) of decisions." Italian companies comply with this assumption and for this reason we investigate the composition of the boards mentioned above in the particular context of Italy. Moving from previous studies that claim that heterogeneous

boards are stronger in monitoring because diversity brings more creativity, innovation, increases ethic and transparency (Wiersema and Bantel 1992; Milliken and Martins, 1996; Adams and Funk, 2012; Larkin et al., 2013), the present paper focuses on some characteristics of diversity within a sample of 121 Italian listed companies during the years 2008, 2011 and 2016. To test our hypothesis we use Francis and Wang, (2008) model that measures Abnormal Accruals; signed abnormal accruals measures the quality of financial information in a better way than the absolute accruals. We expect that diversity on board reduce earnings management practice, helping firms to be more ethical. What we find is that, while diversity within the BoD seems to be irrelevant, diversity within the BSA seems to count and help in reducing the level of EM. Our results indeed show that BoD diversity in terms of female presence and level of education is not associated with earnings management, while the variable represented by directors who have financial expertise (Certified Public Accountant) is positively and statistically associated with EM. On the contrary, BSA diversity, in terms of female presence and expertise (directors who are not only professional accountant but also academic professors) is associated with a low level of earnings management. We find a negative but not significant association between BSA diligence and earnings management.
The paper is structured as follow. Section 2 describes studies about gender, diversity and gender theories. Section 3 develops the hypothesis; it shows an overview of the governance in Italy and describes studies about diversity and earnings management. Section 4 presents the model followed by a discussion of the sample and the regression analysis in section 5. Section 6 discusses the results and finally section 7 incudes the conclusion.

10.Literature Review

10.1. Theories of Diversity

Companies recognize the need to leverage diversity of their employees in order to sustain their competitive advantages in a global marketplace (Offerman & Gowing, 1990; Thomas & Ely, 1996). Moreover, since the low representation of women on corporate boards has been studied with effort and interest, a variety of theoretical perspectives were advanced to explain the dearth of women.
The first is the mentioned “glass ceiling”: invisible barriers that exist for women and other minorities that limit their upward mobility in organizations (Burgess and Tharenou, 2002).

The second comes from the evolutionary psychology—the idea that women are not genetically predisposed to top management roles (Hoobler et al., 2011). This explanation proposes that while men prefer top management roles, women prefer positions with greater job security and fewer challenges instead.
A theory that explains the continued exclusion of women from corporate boardrooms is the human capital theory (Becker, 1964). Human capital theory is related to how an individual's investments in education, knowledge, skills and experiences enhance cognitive and productive capabilities for the benefit of the individual and the firm (Becker, 1964; Westphal and Zajac, 1995). Since each director brings a unique set of human capital resources to the board (Kesner, 1988), those who select new board members may be interested in attracting individuals with particular human capital resources to complete and enhance board's capabilities.
Another interesting theory is the Upper Echelons theory (Hambrick, 2007), which highlights the importance of executive's demographic and multinationality (Kirca et al., 2012) and personal characteristics with implications for the whole board. "If we want to understand why organizations do the things they do, or why they perform the way they do, we must consider the biases and dispositions of their most powerful actors – their top executives (Hambrick, 2007).

10.2. The concept of Diversity

The topic of diversity and in particular diversity in terms of gender has been investigated since many years at company and political level.
Women have always fought to gain their positions; they were considered the minority group and they did not have the same opportunities as men in a career context. The concept of career has been constructed around the images of male, white and middle class manager males. Eagly and Johannensen-Schmidt (2001) claim that, while everybody knows that women face more barriers to become leaders than men do, there is still hesitation on the behavior of women and men once they gain roles as director or executive.
Studies before 1980 have already established a view of gender differences, as it existed in nature and as outcome of management decision involving risk. These studies show that women are more cautious, less confident, less aggressive, easier to persuade and have an inferior leadership and problem solving abilities, reinforcing stereotypical view that women are less able than men were (Powell and Ansic, 1997).

While Chaganti (1986) and Powell (1990) find no significant differences in management decision-making values or styles between man and women, Birley (1989), Sexton and Bowman-Upton (1990) find more similarities than differences in personality traits. Hudgens and Fatkin (1985), Johnson and Powell (1994) find that male and female are equally capable of performing in terms of achieving outcomes from decision-making under risk. Eagly and Johnson in 1990 conduct a laboratory experiments and they find that women tend to manifest relatively interpersonally oriented and democratic styles, whereas men tend to manifest relatively task-oriented and autocratic style. Their findings are consistent with the genders stereotype about roles occupied by man and women but the authors are not able to identify differences in the effectiveness of leaders (Eagly, 1995).

Later, in 1991, Eagly and Wood, explain how sexes typically differ in social context, based on the social role theory; women are better nonverbal encoders than men as well as better decoders. In social situations, women smile and laugh more than men, use their bodies more expressively and show more involvement with others behavior (Eagly, 1993).

Progressively, Eagly at al., in 1995 find that man and women are more effective when they occupy positions that belong to their specific roles. Their results confirm the social-role theory based on which, women and men are believed to possess attributes suited for the roles that they typically occupy and women managers are still viewed as homemakers while man as breadwinners (Eagly, 1987; Eagly & Steffen, 1984; Eagly, 1993).

Lamsa and Sintonen in 2001 “develop a theoretical framework for understanding women leaders in working life” confirming that women leaders tend to be more people-oriented, democratic, consultative, showing interpersonally oriented behavior and concern for other people's satisfaction as compared to men (Eagly and Johnson, 1990; Osland et al., 1998; Tucker et al., 1999).

10.3. Diversity on Board and Earnings Management

Since several years, many researches have investigated the issue of differences within corporate boards of administration and control (Daily et al., 1999; Kanter, 1977).

Female directors are known to be tougher monitors (Farrell and Hersch, 2005) and contribute to the heterogeneity of boardrooms. Moreover, female representation on corporate boards improves governance efficiency in areas such as monitoring control (Adams and Ferreira 2009),

reducing agency conflicts (Arfken et al. 2004; Farrell and Hersch 2005; Francoeur et al. 2008; Peterson and Philpot 2007).

Some papers consider the topic of diversity not only from the gender diversity perspective but also from differences in terms of age, race, culture, competence and expertise (Adams and Funk, 2012; Maznevski, 1994; Milliken, Martins, 1996; Burke, 2000).

Generally, diversity brings benefits to the board: new ideas, better communication and outcomes as turnover, performance and relevance of firm value (Milliken and Martins, 1996; Velte, 2017). Specifically, Singh et al. (2008), in their study, discover that, while it is more likely that female directors are from different nationalities, have an MBA education, and have expertise in small companies, male directors have experiences as executives.

Recently some authors show an interest in the relation between diversity and EM (Xie et al., 2003; Carcello et al., 2006; Kyaw et al., 2015; Hardies et al., 2016). The literature defines EM as a situation that occurs when "managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers" (Healy and Wahlen, 1999).

Studies attempt to analyze the specific characteristics of both Boards of directors and Audit Committees members and earnings management practices. Audit Committee is the board in charge for the control; it oversees the financial reporting process, including risks and plays an important role in company's financial integrity.

Xie et al. (2003) analyze not only the degree of independence but also members background in corporation, finance and law, board's meeting and if members are audit and executive committees members. They conclude that board and committee meetings, as well as corporate and financial expertise and independence are associated with a low level of earnings management.

Like Xie et al. (2003), Ebrahim (2007) assumes that a more independent and active board helps in reducing earnings management. Testing this relation, he finds what he expects; more independence and more activity are associated with less abnormal accruals. Moreover he tests CEO duality and stock ownership of independent directors, but he does not find any results. In a sample of U.S firms for the year 2003, Carcello et al. (2006) examine the relation between audit committee financial expertise and both abnormal accruals and real earnings management. They consider as financial expert not only the education and the certification process but also previous experiences the directors had within firms. They find mixed results, positive or

negative association between financial expertise and earnings management, based on the type of earnings management practice.

Since few studies are focused on the relation between gender diversity and earnings management, Sun et al. (2011), investigate that analysis in a sample of U.S firms after the SOX enactment. In particular they try to understand if women are ethical and against earnings management and they argue that "it is difficult to test audit committee member's real ethical attitudes towards earnings management", thus they do not claim any association.

Arun et al. (2015) in their paper investigates how the presence of woman in the role of independent directors helps firms experiencing less earnings management. Furthermore they analyze high-debt and low-debt firms, indicating that in the second type when the number of female is high, female directors are more conservative and help in reducing earnings management.

As we showed in the previous chapter, women directors and ethnic minority directors may have different impact and different roles inside of the board (Hillman et al., 2002; Peterson and Philpot, 2007; Carter et al., 2010). While studies find that the larger the board, the greater the number of female directors on it (Brammer et al. 2009; Hyland and Marcellino 2002) the less effective is the monitoring process (Fama and Jensen 1983), other suggests the opposite.

Gul et al. (2013), starting from the assumption that diversity brings benefit, conduct a study on board diversity and analyst forecasts because "understanding the effect of board gender diversity on financial statement users is essential, for example, in evaluating the desirability of legislating similar female-director requirements in the U.S". Results show that diversity and more transparency of financial reports lead to better earnings quality. Women indeed are more conservative, risk averse and have more ethical behavior than male; they are also able to obtain voluntary information, which may reduce asymmetry between women directors and managers.

Relying on those differences between male and female and on the gender theory, Thiruvadi and Huang (2011) show that the presence of female director on audit committees constrains earnings management measured by discretionary accruals. Female presence leads to better governance through the increasing number of meetings and quality of financial reports.

Manager in top position have an ethical responsibility to disclose real information and previous studies show that gender diversity in senior position on board leads companies to gain profitability and values (Horvath and Spirollari, 2012; Anderson et al. in 2011).

Krishnan and Parsons (2008) attempt to understand if gender diversity in senior position affects the quality of earnings. They find a positive and significant relation between the presence of

more women on board and earnings quality. Peni et al., (2010) focus on the relation between gender of CEO and CFO and they find that while female CFO is positively associated with income-decreasing discretionary accruals, female in the role of CEO is not associated with earnings quality. This analysis confirms what other studies previously found (Hiebl et al., 2015). Barua et al., (2010) focus on the specific role of female CFO and how the role of CFO increases importance, especially after the failure of Enron, WorldCom and Parmalat. Starting from the assumption that women are less aggressive, more cautious in financial decisions, more risk-adverse in investment choices, more compliance with the rules and regulations they conclude that firms with female CFO show lower level of absolute abnormal accruals and estimation of errors.

Qi and Tian (2012) analyze how some characteristics of audit committees' members like age, gender, education level and work experiences affect the quality of financial reports. Their findings show a positive relation between older board, female presence financial working experience and the quality of financial information, while they do not find any relation testing education level variable.

Recently Kyaw et al. (2015) examine the effect of board gender diversity on earnings management in European countries motivated by the fact that many countries have enacted legislations about gender equality. They claim "female directors can bring benefits to the company if the workplace environment empowers them", revealing that high presence of female on board is associated with a lower level of earnings management.

Overall diversity, as represented by gender, age, expertise, and nationality offers valuable opportunities and benefits to firms' governance and monitoring process.

11.Hypothesis Development

As mentioned above, diverse groups lead to creativity and produce a greater range of perspectives and solutions to problems (e.g., Wiersema and Bantel 1992; Watson et al., 1993), diverse board means acquiring legitimacy in the view of the public, the media, and the government (Adams and Ferreira, 2009). Companies have better earnings quality and control when they have female directors or higher proportion of female directors on the board (Gul et al., 2013). Women indeed are more risk averse and have more ethical behavior than male. Greater female representation appears to be associated with more attention to conflict-of interest issues (Brown et al., 2002). Inspiring by that findings and by the experimental paper of Thorne

et al. (2003) that shows that female auditors are less tolerant to opportunistic behavior than male are, the present paper investigates how the presence of female and other measures of diversity are associated with earnings management practice. We rely on agency theory in order to understand the relation between managers and directors, behavior regarding earnings management and to understand the interesting problem of agency and opportunistic behavior at governance level. Agency theory indeed restores and warns about firms' way of thinking in term of self-interests and opportunism (Perrow, 1986) and it is based on the assumption that "an effective system for decision control implies that the control of decision is to some extends separate from the management of decision" (Fama and Jensen, 1983). The governance in the Italian system complies with the assumption above; indeed it belongs to the so-called Latin or Traditional system (Sections 2380 and following of the Italian Civil Code), characterized by a high level of ownership concentration and a limited role of stock market (Melis, 2000). Shareholders' meeting provides the appointment of two main boards: the Board of Directors and the Board of Statutory Auditors. The BoD makes decisions on shareholders' behalf, helps firms to reach their goals and is responsible for managing firm's resources.

BSA instead is in charge for the control of firms' compliance with the law and by the-laws, the respect of good managing practice and the adequacy of organizational, administrative and accounting systems adopted. The Draghi reform, enacted in 1998, modifies the functions of BoD members: "it requires executive directors to report their activity to the Board of Statutory Auditors at least quarterly, with special attention to the most relevant transaction, especially the once which may involve potential conflicts of interests" (Melis, 2004). BSA represents a peculiarity of the Italian governance and its importance as monitoring board is increasing. For those reasons, we choose a sample of Italian firms and we think that, investigate the characteristics of diversity within that board lead us to understand mechanism that are behind the governance system itself.

In terms of Diversity, specifically gender diversity, it is good to mention the Italian Law n.120/2011 (effective from 2012), a legislation to promote gender balance in governing boards of listed companies on regulated markets, and of non-listed companies controlled by the government. The less represented gender within both BoD and BSA obtains at least one third of the seats for three consecutive terms after the entry into force of the law. In particular, at the first renewal, a fifth of the seats on the board are reserved for the less represented gender, while at the second and third renewal, the quota must increase to a third of the members.

All those things considered we attempt to investigate how boards of administration and control deal with the opportunistic behavior of the management, investigating if diversity within the BoD and BSA add value and help reducing the manipulation of information.
Thus we test the following hypothesis:

H1: Board of director's diversity is related to lower earnings management.
H2: Board of Statutory Auditor's diversity is related to lower earnings management.

12.Research Methodology

We use the signed abnormal accruals as a measure of earnings management to test our Hypothesis.
The model in (1) below measures the signed Abnormal Accruals following Francis and Wang (2008):

EM_t = (ACCt – [WCt-1/SALESt-1 *SALESt + DEP t-1/GPPE t-1*GPPE t]) /ASSETt-1 (1)

Where:
ACC = (earnings before extraordinary items – cash flow from operation) / total assets.
WC = working capital as (current assets – cash and short term investment) – (current liabilities - debt in current liability).
SALES = sales.
DEP = depreciation.
GPPE = gross property plant equipment / total assets t-1.
ASSET = total assets.

Hypothesis are tested with the Regression model in Equation (2):

$EM = \beta_1 FemaleBoD + \beta_2 EducationBoD + \beta_3 ExpertiseBoD + \beta_4 FemaleBSA + \beta_5 DiligenceBSA + \beta_6 ExpertiseBSA + \beta_7 Year + \beta_8 Loss + \beta_9 Size + \beta_{10} Leverage + \beta_{11} SalesGrowth$ (2)

Female BoD is the percentage of female on BoD (Peterson and Philpot 2007; Campbell and Vera, 2008; Huse et al., 2009; Adams and Ferreira, 2009; Bear et al., 2010; Campbell and Vera,

2010; Nielsen and Huse 2010; Thiruvadi and Huang, 2011; Ahern and Dittmar, 2012; Qi and Tian, 2012; Larkin et al. 2013; Wang and Kelan, 2013; Bianco et al., 2015; Kyaw et al., 2015). We divide the education of BoD members into four levels: 1 = high school; 2 = bachelor or master degree; 3 = MBA or other Masters; 4 = PhD (Hillman et al. 2002; Jehn and Bezrukova 2004; Singh et al., 2008; Nekhili and Gatfaoui 2013). We take the average education level of BoD as final proxy of education (Herrmann and Datta, 2005; Qi and Tian, 2012). Expertise BoD takes value 1 if at least one member of the BoD has the CPA (Certificate Public Accountant) (Lin et al., 2006; Carcello et al., 2006). The variable Female BSA is the percentage of female on BSA (Thiruvadi and Huang 2011; Sun et al., 2011; Qi and Tian, 2012). Inspired by the study of Srinidhi et al. (2011), where the percentage of meetings is the fraction of directors who attend over 75 percent of meetings, we define the variable Diligence BSA that takes value 1 if the majority of BSA members attend the meetings during the year, 0 otherwise. Expertise BSA takes the value 1 if at least one member of the BSA is, not only expert in Finance, accounting or law, (Carcello et al., 2006; Lin et al., 2006; Abbott et al., 2012) but also is an academic professor.

We control for SIZE of firms, that is the natural logarithm of total assets for firm i in year t (Francis and Wang, 2008; Campbell and Vera, 2008; Campbell and Vera 2010; Barua et al., 2010; Peni and Vahamaa, 2010; Sun et al., 2011; Gul et al. 2013; Arun et al., 2015; Kyaw et al., 2015). LEV is total assets scaled by total equity at the end of the fiscal year (Carcello et al., 2006; Campbell and Vera, 2008; Campbell and Vera 2010; Peni and Vahamaa, 2010; Qi and Tian, 2012; Arun et al., 2015; Kyaw et al., 2015). GSALES is (revenue at time t – revenue at time t-1) scaled by revenues at time t 1 (Francis and Wang, 2008; Barua et al., 2010; Peni and Vahamaa, 2010; Sun et al., 2011; Qi and Tian, 2012¸ Arun et al., 2015). LOSS is a dummy variable taking the value 1 if firm i reported negative net income in year t, and zero otherwise (Francis and Wang, 2008; Peni and Vahamaa, 2010; Qi and Tian, 2012¸ Gul et al. 2013; Arun et al., 2015).

13.Sample

The sample subject to analysis is made of 121 non-financial companies listed on the Milan Stock Exchange at the date of February 6th, 2017 (unbalanced sample). We start with the whole population of Italian listed companies, we exclude financial companies and companies that are

listed on foreign markets because they are characterized by a different mechanism of decision-making and control systems. We consider companies that are listed during the years of analysis (2008, 2011 and 2016). We hand collect data about BoD and BSA member's characteristics from the Corporate Governance Reports and from directors' Curricula. We obtain financial data from the Aida Bureau Van Dijk database and from financial reports. Since the Civil code, Sections 2380 and following, imposes that members of both boards are appointed for three years, we collect data for the years 2008, 2011 and 2016 in order to see the changing management and to investigate a possible changing of earnings management practice. Moreover, during the year 2012, listed companies are forced to appoint members based on the Italian Gender Quota (Law 120/2011), thus we investigate firms behavior regarding the appointment of women and if and how the presence of women is associated with the earnings management during a remarkable timeline.

Table 2 displays the descriptive statistics for the sample. Out of 314 observations, the mean of Earnings management is -0.182. The average proportion of female directors within the BoD is 0.157 while the average proportion of female within the BSA is 0.161; the proportion is low because it represents the average of the three years and as we said before, the Law requires a certain percentage of female on board from the year 2012. Education on average is 1.659 indicating that most of the members on the board have a bachelor or master degree. Expertise of BoD is 0.566 indicating that half of the firms in our sample have at least one professional accountant on their board. Most of the directors attend all the BSA meetings as the variable Diligence BSA indicates (0.778). Less than half of the firms in our sample have at least one director who is not only accountant or lawyer but also academic professor; the average of Expertise BSA is indeed 0.373.

Table 3 illustrates the univariate correlation between variables. Expertise of BoD members is positively correlated with the level of education on BoD; female on BSA is negatively correlated with the earnings management as expected and positively correlated with the level of education on BoD and expertise of BoD members. VIF is well below 5, so we conclude that there are no problems of multicollinearity.

14. Results and Discussion

Table 4 presents the results of the first hypothesis on BoD diversity characteristics and earnings management. First, we regress EM and BoD diversity and, even though we expect a negative

and a significant association between the presence of female on board, the level of education and earnings management, we find negative coefficients but not statistically significant. Expertise of BoD directors is significant but positive (coefficient = 0.058), indicating that, boards where at least one member is professional accountant are more prone to earnings management practices. This unexpected result show that directors who are expert of finance and accounting majors, know how to manipulate financial information to achieve better results.

Table 5 shows findings related to the second hypothesis on BSA diversity characteristics and earnings management. The presence of female on board is negatively associated with EM, (coefficient = -0.359) and it is statistically significant (p-value = 0.024). This first result on BSA confirms what we find in literature; women are ethical and are less tolerant to opportunistic behavior. Another interesting result shows that the variable Expertise on BSA is negative related to EM (coefficient = -0.101; p-value = 0.055) meaning that, BSA directors who are, not only financial experts, accountant or lawyer, but also academic professors, curb earnings management. Though the coefficient of Diligence BSA is negative, the variable is not statistically significant, so we cannot conclude any relation between the diligence on BSA and earnings management.

15.Conclusion

The present paper investigates the topic of diversity within governance boards (BoD and BSA) in a sample of Italian listed companies for the years 2008, 2011 and 2016.

Many studies analyze characteristics of diversity within boards of administration and control from different perspective but the results are different and, sometimes, in conflict. Numerous researches investigate the association between diversity on board and firm performances, focusing in particular on the board of management like board of directors. However, few of them consider the monitoring board, like Audit Committees or the Board of Statutory Auditors in Italy.

One of the most important and investigated part, related to the topic of diversity, is the gender diversity; the European Union perceived the urgency of this matter and Norway was the first that introduced quotas for women in 2003, requiring public companies to preserve at least 40% of their board seats to the less represented gender. Iceland, Spain and France followed with 40% targets and then Italy in 2012. Inspiring by the Italian requirement of gender balance and the

requirement for board members to change or to be reappointed after three years, we focus our analysis on some characteristics of diversity during the years mentioned above.
Our study attempts to feel the gap existing in the literature, through an analysis on characteristics of diversity, considering both the Board of Statutory Auditors members and some characteristics of the Board of Director that has been analyzed already. Interestingly we find a negative association between earnings management and two proxies of diversity within the Board of Statutory Auditors: the presence of female and the expertise.
Considering the crucial role of monitoring boards for the corporate governance system, a deepen and interesting further step could take into account the diversity of the Internal Control Committee. The analysis of the main boards of governance and the characteristics of diversity could give us a more precise overview about the Italian governance system and the behavior in respect to the earnings management. Moreover, since the Law 120/2011 is still in place, some studies could monitor how boards change across a wider period of time.

Appendix 1 – Variable Definitions

Dependent Variables		
EM	**Francis and Wang (2008) model**	= signed abnormal accruals measured as follow Abnormal accruals EMt = (ACCt – [WCt-1/SALESt-1 *SALESt + DEP t-1/GPPE t-1*GPPE t]) / ASSETt-1 where ACC = (earnings before extraordinary items – cash flow from operation) / total assets WC = working capital as (current assets – cash and short term investment) – (current liabilities - debt in current liability) SALES = sales DEP = depreciation GPPE = gross property plant equipment / total assets t-1 ASSET = total assets
Independent Variables		
FemaleBoD	% of female on Board of Directors (Peterson and Philpot 2007; Campbell and Vera, 2008; Huse et al., 2009; Adams and Ferreira, 2009; Bear et al., 2010; Campbell and Vera, 2010; Nielsen and Huse 2010; Thiruvadi and Huang, 2011; Ahern and Dittmar, 2012; Qi and Tian, 2012; Larkin et al. 2013; Wang and Kelan, 2013; Bianco et al., 2015; Kyaw et al., 2015).	
EducationBoD	Education level of Board of Directors as the average education (Herrmann and Datta, 2005; Qi and Tian, 2012).	
ExpertiseBoD	1 if firm has at least one accounting financial expert on the Board of Directors, 0 otherwise (Carcello et al., 2006; Lin et al., 2006).	
FemaleBSA	% of female on the Board of Statutory Auditors (Thiruvadi and Huang 2011; Sun et al., 2011; Qi and Tian, 2012).	
DiligenceBSA	1 if the majority of the Board of Statutory Auditors members attend the meetings during the year, 0 otherwise (Srinidhi et al., 2011).	
ExperticeBSA	1 if at least one member of the Board of Statutory Auditors is, not only expert in Finance, accounting or law, (Carcello et al., 2006; Lin et al., 2006; Abbott et al., 2012) but also is academic professor.	
Control variables		
YEAR	2008, 2011, 2016.	
$SIZE_{it}$	The natural logarithm of total assets at the end of the fiscal year (Francis and Wang, 2008; Campbell and Vera, 2008; Campbell and Vera 2010; Barua et al., 2010; Peni and Vahamaa, 2010; Sun et al., 2011; Gul et al. 2013; Arun et al., 2015; Kyaw et al., 2015).	
LEV_{it}	Total assets scaled by total equity at the end of the fiscal year (Carcello et al., 2006; Campbell and Vera, 2008; Campbell and Vera 2010; Peni and Vahamaa, 2010; Qi and Tian, 2012; Arun et al., 2015; Kyaw et al., 2015).	
$GSALES_{it}$	(Revenues t – Revenues t-1) scaled by revenues t-1 (Francis and Wang, 2008; Barua et al., 2010; Peni and Vahamaa, 2010; Sun et al., 2011; Qi and Tian, 2012¸ Arun et al., 2015).	
$LOSS_{it}$	1 if firm i reported negative net income in year t, 0 otherwise (Francis and Wang, 2008; Peni and Vahamaa, 2010; Qi and Tian, 2012¸ Gul et al. 2013; Arun et al., 2015).	

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Table 11 - Descriptive Statistics

Dependent variables	Mean	25% Percentile	Median	75% percentile	Std. Dev.	Min	Max
EM	-0.182	-0.288	-0.131	-0.023	0.363	-3.293	0.688
Independent variables	**Mean**	**25% Percentile**	**Median**	**75% percentile**	**Std. Dev.**	**Min**	**Max**
FemaleBoD	0.157	0.000	0.143	0.273	0.1444	0.000	0.556
EducationBoD	1.659	1.500	1.750	2.000	0.477	0.000	2.667
ExpertiseBoD	0.566	0.000	1.000	1.000	0.496	0.000	1.000
FemaleBSA	0.161	0.000	0.000	0.333	0.187	0.000	0.667
DiligenceBSA	0.778	1.000	1.000	1.000	0.416	0.000	1.000
ExpertiseBSA	0.373	0.000	0.000	1.000	0.484	0.000	1.000
Control variables	**Mean**	**25% Percentile**	**Median**	**75% Percentile**	**Std. Dev.**	**Min**	**Max**
YEAR	2011	2008	2011	2016	3.288	2008	2016
$LOSS_{it}$	0.282	0.000	0.000	1.000	0.451	0.000	1.000
$SIZE_{it}$	12.683	11.633	12.442	13.608	1.742	3.526	18.301
LEV_{it}	2.866	1.608	2.212	3.070	6.588	-67.461	77.220
$GSALES_{it}$	4.943	-0.214	0.015	0.174	55.981	-19.393	804.445

Table 12 - Pearson Correlation Matrix

		1	2	3	4	5	6	7	8	9	10	11	12
1	EM	**1.000**											
2	FemaleBoD	-0.018	**1.000**										
3	EducationBoD	-0.049	0.056	**1.000**									
4	ExpertiseBoD	0.119	0.032	**0.213**	**1.000**								
5	FemaleBSA	**-0.134**	**0.550**	0.064	**0.022**	**1.000**							
6	DiligenceBSA	-0.043	-0.125	0.081	0.001	0.048	**1.000**						
7	ExpertiseBSA	-0.088	0.109	0.062	0.058	0.024	-0.020	**1.000**					
8	YEAR	0.012	**0.728**	**0.168**	0.049	**0.602**	-0.009	0.103	**1.000**				
9	LOSS	0.051	0.023	**-0.148**	0.003	0.0035	-0.111	-0.042	-0.018	**1.000**			
10	SIZE	0.076	**-0.116**	**0.143**	0.086	-0.092	-0.039	**0.253**	0.001	**-0.234**	**1.000**		
11	LEV	0.062	0.062	0.080	0.050	0.036	-0.041	0.088	0.029	0.043	0.033	**1.000**	
12	GSALES	0.033	-0.044	-0.031	-0.033	-0.062	-0.067	-0.063	-0.056	**0.123**	-0.000	-0.019	**1.000**

Table 13 – Regression on Earnings Management and BoD Diversity Variables

Variables	Coef.	Std. Err.	t	P-value	[95% Conf.	Interval]
Interpect	-9.441	23.445	-0.400	0.688	-55.655	36.772
FemaleBoD	-0.090	0.242	-0.370	0.710	-0.568	0.387
EducationBoD	-0.068	0.053	-1.290	0.199	-0.173	0.036
ExpertiseBoD	0.096	0.050	1.900	0.058	-0.003	0.196
YEAR	0.004	0.011	0.390	0.700	-0.018	0.027
LOSS	0.044	0.057	0.770	0.444	-0.069	0.157
SIZE	0.017	0.015	1.190	0.236	-0.011	0.047
LEV	0.002	0.003	0.880	0.382	-0.003	0.009
GSALES	0.000	0.000	0.270	0.788	-0.001	0.001
N	223					
R^2	0.04					

Table 14 – Regression on Earnings Management and BSA Diversity Variables

Variables	Coef.	Std. Err.	t	P>t	[95%Conf.	Interval]
Intercept	-23.005	20.857	-1.100	0.271	-64.116	18.105
FemaleBSA	-0.359	0.157	-2.280	0.024	-0.670	-0.048
DiligenceBSA	-0.015	0.058	-0.270	0.791	-0.131	0.100
ExpertiseBSA	-0.101	0.052	-1.930	0.055	-0.204	0.002
YEAR	0.011	0.010	1.080	0.281	-0.009	0.0317
LOSS	0.067	0.057	1.190	0.237	-0.044	0.180
SIZE	0.022	0.015	1.460	0.146	-0.007	0.053
LEV	0.003	0.003	1.050	0.293	-0.002	0.009
GSALES	6.26E-05	0.000	0.100	0.923	-0.001	0.001
N	224					
R^2	0.05					

Socio-environmental information and graphs' distortion: can they impress investors and manage their decisions?

Abstract

In accounting studies the importance of 'visuals' is increasing. In the last years a number of accounting papers have devoted attention to visual images as pictures, graphs and drawings and to their resonance in accounting disclosure. Many accounting studies on 'visuals' focused on graphs and revealed their role as impression management tools. 'Impression management' comes from the sociologist Erving Goffman (1959) who described each individual as an actor in a theatre whose scope is to 'impress' the viewers. The preparers of financial or socio-environmental reporting are seen as the actors who want to impress the readers. In this view accounting scholars have examined how visual images, like graphs, can be distorted in order to obtain information as much favourable as possible for the company. Previous studies found high level of graphs' distortion and linked this distortion with impression management techniques or with legitimacy intents. This study aims to fill the existing gap on the readers' reaction to the use of visual focusing on value relevance effects. More concretely this study supposes that visual devices have effects on readers' decisions and thereby on market value. This supposition is based on the importance of graphs' distortion.

Keywords: Impression management, Visual images, Graphs, Value Relevance.

16.Introduction

In accounting studies the topic of 'visuals' is increasing in importance. Indeed in the last years a number of accounting papers have devoted their attention to visual images like pictures, graphs and drawings and to their resonance in accounting disclosure (Davison, 2007, 2009, 2011; Parker and Guthrie 2009; Cho et al., 2012). Many accounting studies on 'visuals' have focused on graphs and have revealed their role as impression management tools (Beattie and Jones, 1992; Jones, 2011; Cho et al., 2012). The term 'impression management' comes from the studies of the sociologist Erving Goffman (1959) who describes each individual as actor in a theatre whose aim is to 'impress' the viewers. In accounting studies the preparers of financial reporting or social and environmental reporting are seen as actors who want to impress the readers of the documents of disclosure. In this regard, accounting scholars examine how visual images, like graphs, are distorted, so that the information they convey result as much favorable as possible for the company disclosing it (Beattie and Jones, 1992; Jones, 2011; Cho et al., 2012). Previous studies found a high level of graphs' distortion and linked the distortion with legitimacy intents or with impression management techniques (Harasky, 2012). Currently legitimacy theory is the dominant theory that examines the voluntary socio and environment reporting (Suchman, 1995). It helps understanding the reasons of companies' disclosure (Hrasky, 2012; O'Donovan, 2002) and the legitimacy intent.

Impression management becomes a notable perspective that tries to conceptualize the use of visuals in accounting disclosure. This point of view supports the idea that visual tools included in financial and accounting reports could be a powerful instrument to distort, manage and address the readers' impressions by supporting and promoting a positive image of the organization. Therefore, many studies use the concept of impression management as a lens for interpreting organizational and/or managerial attitudes and motivations in disclosing information (Merkl Davies and Brennam, 2011).

However, the extant literature does not elucidate on whether impression management strategies are able to influence the readers' decision-making process. In particular the empirical investigations on the effect of visual disclosure as impression management tool are scarce.

Consequently, this study aims to fill the existing gap on the readers' reactions to the use of visual (in particular on the use of graphs) by focusing on value relevance effects. Since information is considered value relevant when it is both relevant and reliable (Barth et al., 2001), some studies

investigate how financial information and information on intellectual capital create firms value and which is the effect on investors (Cordazzo, 2005; Abhayawansa and Guthrie, 2010; Melloni, 2015). More concretely this study supposes that visual devices have effects on readers' investment decisions and thereby on market value. This supposition is based on the importance devoted to graphs' distortion by accounting scholars and their concern about company's use or abuse of visual (Beattie and Jones, 1992; Jones, 2011; Cho et al., 2012).

Furthermore, this paper measures the reader's reactions on voluntary social and environmental information; the existing literature indeed devotes ample space to the disclosure of voluntary information on social and environmental topics (Parker, 2005; Gray et al., 2001). Due to the voluntary nature of the majority of social and environmental accounting practices some scholars promote and suggest the use of standards (Belal and Roberts, 2010, O'Dwyer and Owen, 2005) such as Global Reporting Initiative sustainability reporting guidelines (GRI guidelines) to improve the quality and the reliability of the social and environmental reports. In this scenario our study seeks to contribute to the 'unresolved issue' concerning the relationship between social and environmental reporting and corporate performance examining the impact of socio-environmental information on reader's reactions. Since this type of information is often considered as a legitimacy/impression management tool (Goffman, 1959; Lindblom, 1994; Suchman, 1995), the existence of an impact of this information on the investors' decisions could be read as impression management intent.

Furthermore, previous researches show that during the financial crisis the relevance of information changes (Devalle, 2012). Thus the period of financial crisis could influence impression management tactics.

Informed by the aforementioned studies, this work measures the level of social and environmental disclosure and the level of distortion of graphs in a sample of 42 Italian listed companies (which accounted for approximately 52.17% of the entire stock market capitalization on 30 April 2014) using GRI guidelines. The authors' aim is to deep the use of voluntary social and environmental information and the use of graphs in a country as Italy considered as inclined to manage numbers and figures (Ianniello, 2009). In detail this paper faces two research questions.

1) Do the social and environmental information and graphs' distortion matter for investors?
2) Does the financial crisis have an impact on the level of disclosure and graphs distortion?

In order to provide an answer to the above research questions we use the Ohlson's (1995) model modified to allow an analysis of the relationship between the market value and graphs' distortion (gathered from social and environmental information). The research methodology is carried out in two phases. In the first phase we use a content analysis (Kripperdorff, 2004; Unerman, 2000) to determine an indicator that measures the level of social and environmental information (Clarkson et al., 2008; Clarkson et al., 2013) and an indicator that measures the graph discrepancy (Beattie and Jones, 1992). During the second phase we calculate the value relevance by adding the indicators previously structured within the Ohlson's (1995) model.
Finally this paper offers a multifaceted explanation of the use of graph and the concept of impression generated by visuals and it enriches the impression management literature by evaluating the real impact of an impression management strategy (the graph's distortion) on investors' decisions, before and during the financial crisis.
The paper is articulated as follows: the first section devotes the literature review to the topic of impression management and its interrelation with the concept of social and environmental reporting and visuals; then the methodological section describes the sample and the mixed method used for the analysis; the finding's section shows the data analysis results and finally the conclusion highlights the answers to the research questions.

17.Literature Review

17.1. The role of Visuals as impression management tools

In modern society, the attention to visual communication has increased in importance as demonstrated by "visual disciplines" like the visual marketing (Pieters and Wedel, 2007). Accounting scholars recognize that in accounting documents visuals have an important space and a strong impact on the readers (Warren, 2005; Davison, 2007, 2009, 2011; 2014; Bernardi et al. 2002, 2005, Brown 2010; Parker, 2009; Harasky, 2012; Pesci et. al, 2015). Visual tools could be used as instrument to present numbers of performance and as means for analyzing accounting text, focusing in particular on the pictorial form. Moreover, following the idea that accounting and finance are conditioning instruments, readers should pay more attention to the mystical features rather that the textual content (Quattrone 2009).

A wide range of contributions focuses on visuals; an important contribution on the relationship between visuals and accounting is the study by Brown (2010) who highlights the potentiality of visual cultural studies in the accounting field.

Another different and interesting approach is proposed by Parker (2009), who, using an experimental study, observes what type of readers' reactions occurs in face of visuals. In particular, the research studies the photo-elicitation and management historians and finds that the first one approximates the experience of phenomena and cultures and also it encourages disclosure and knowledge that would otherwise be inaccessible.

However, the majority of accounting studies related to the topic of visuals uses the annual reports or stand-alone social and environmental reports as basis to collect and analyze data by adopting various interpretive lenses. Davidson (2014) starting from the Barthesian work analyzes the images presented in the annual report showing that the communication relating the intellectual capital is influenced from the rhetoric and its aim is to impress the readers and provide them subliminal messages. Furthermore, Davidson (2014) proposes a useful theory to interpret the visual rhetoric in the pictures and photographs and also a theoretical framework to examine visual images through a model of visual repetition based on identity, similarity, accumulation and series. Bernardi et al. (2002, 2005) focusing on picture in annual reports study the use of them as instrument to signal gender diversity and presence of minority shareholders in the board of directors. They highlight that the presentation of pictures of the board of directors in the annual reports is associated with more diversity in the board of directors; furthermore, following the idea that pictures in the annual reports are associated with an higher percentage of minority shareholders in the board, the authors conclude that pictures on corporate boards could be an indicator of an higher percentage of minorities at the highest level of these organizations. Then Hrasky (2012) studies the visual theme in relation to social and environmental disclosure and he compares sustainability companies with the less-sustainability ones. His results suggest that, when companies do not care about the sustainability impact, they are more likely to obtain only symbolic legitimacy while companies careful about their environmental impact disclose more about actual impact and accomplishments. Pesci et al., (2015) analyze the rationales for using different typologies of visuals in social and environmental stand alone reports in an Italian non profit context, by offering a theoretical explanation based in Hume’s philosophy and the possibility to reach knowledge through the

ability of visuals. Analyzing cooperative banks' reports, the authors indicate that repetition is widespread and the banks use different forms of repetition often based on visuals. Lately the topic of visuals is investigated in relation to the concept of impression management; a wide framework is employed in management and accounting researches to investigate narrative disclosure, but also the theme of visualization as tool of manipulation. Erving Goffman (1959) uses for the first time the expression impression management, referring to the human attitude to make a good impression to other people. Later on, the term impression management is used in different filed of studies and it indicates not only a human behavior but also companies and organizations behavior, especially when they report and disclose information.

Precisely, Clatworthy and Jones (2001) and Yuthas et al. (2002) depict the corporate report as an instrument to manipulate the perception of users of accounting information and stakeholders' decisions. Hooghiemstra (2000) instead comes back to the definition by Goffman, meaning how individuals present themselves to be perceived favorably by others. But a first important study that suggests the idea of visual images as vehicles for impression management is made by Brennan et al. (2009). In this study the authors review prior impression management researches. The first topic considered by the authors is composed by the vehicles can be used to impress investors and other stakeholder; among that, the authors mention narrative documents devoted to voluntary disclosure as environmental reports (Brennan et al., 2009). Moreover Brennan et al. (2009) indicate a number of impression management tactics which can be used: syntactical manipulation, rhetorical manipulation, attribution of organizational outcomes, thematic manipulation, selectivity, visual/presentation effects (emphasis), impression management using performance comparisons. The majority of the above-mentioned tactics concern narrative disclosure, but selectivity and emphasis encompass also visual images presented in the disclosure documents. In particular the perspective of the visual/presentation to obtain emphasis occurs when "companies use presentation techniques to make a piece of information more obvious to readers" (Brennan et al., 2009, p.797). This technique of impression can be achieved thought the use of colures (So and Smith, 2002; Courtis, 2004) or repetition of narrative together with visuals (Courtis, 1996; Pesci et al., 2015). Furthermore the selectivity tactic of impression management is studied extensively for narrative and visual disclosure with particular attention on the role of graphs (Beattie and Jones 1997, Jones 2011, Cho et al. 2012). Actually a number of visual (graphic highlighting, headings, bulleted or numbered lists, color, shading, logos) is

able to interact with narrative to produce emphasis on some concepts considered important by the preparers of accounting documents or is able to distort the readers' impression. In sum, following the interpretation of Brennan et al. (2009), the role of visuals is seen as a deliberate willingness to impress the reader's mind by emphasizing or distorting concepts.

17.2. Graphs in accounting and impression management studies

Within the different typologies of visuals used in accounting documents, namely pictures, drawings, tables or graphs, a particular attention is devoted to the role of graphs, which are analyzed in a number of accounting studies. The potential of graphs to improve the effectiveness of communication in external financial reporting is readily established. According to Lee and Tweedie (1975), graphs are more visual appealing than the readability of information in the annual reports. Humans have more capacity to remember visual patterns than memorize text or numerical tabulations; graphs indeed are more likely to be remembered (Paivio, 1971; Bettie and Jones, 1992) and are useful for highlighting trends (Wright, 1989). Moreover, graphs are not only a powerful tool of communication but also means of legitimation. Starting from the legitimacy distinction made by Suchman (1995) in pragmatic, moral and cognitive legitimacy, Hrasky (2012) claims that "preparers can choose from a variety of graphs types" on the basis of companies specific purpose.

In the literature, statistical graphics are studied in two phases. Initially, principles of graphs construction are inductively derived from the practice; in more recent researches these principles are established within rigorous theoretical framework. In a first stage of their research, Mason (1985) and Wilkins & Lennard (1988) analyze the trend of use of graphs in corporate disclosure. Martin (1989) underlines the relevance of graphs in the best corporate practice. Taylor and Anderson (1986) conduct an experiment: they send the same pairs of graphs to commercial loan officers at bank all over the U.S and each couple is coherent with financial data but the format of the two graphs is different. One of them is distorted in order to impress the readers. Their study suggests seven guidelines that are useful for accountants in evaluating the graphs adequacy in respect to the financial statement; in detail the preparers should include the zero line or other base of comparison, avoid rate of change graphs in public presentations, use multiple amount scales cautiously, place the most irregular stratum at, or near, the top of the

graph, choose the years to be presented carefully, do not necessarily use the same order of time values that the financial statements use and finally, do not extend the scale range much beyond the highest or lowest point plotted on the graph. In the same period Korol (1986), debating about visual and graphs perception in external financial information, presents the statistical graphics theory. Steinbar (1989) focuses on 319 companies included in the Fortune 500 and presents criteria for judging the accuracy of graphs of financial information. In particular, the aim of the research is to quantify the distortion in graphs, focusing on sales, net income and dividends, and link that to the change in net income. The majority of annual reports analyzed do not contain graphs that violate the criteria for graphs accuracy and at the same time, companies with a negative trend in their net income arise more discrepancies than the others. Beattie and Jones (1992) conduct a study about the use and abuse of graphs; they found that companies use graphs consciously as tools to reach a specific aim, and most of them portray at least one key financial variable. They do not find particular differences between financial and non-financial companies in the use of graphs and, specifically, financial companies are less likely to include key financial variables in their graphs. They discover that companies with good performance show key financial variables and the distortion is likely to give a more favorable portrayal to the company. These findings suggest active manipulation by the responsible for the preparation of graphs (Beattie and Jones, 1992). After the study in 1992, Beattie and Jones in 1997 compare the graphical reporting practices in the 1990 annual reports of U.S. and U.K. industrial companies; this study reveals important differences in the way in which financial graphs are used in the U.S. and in the U.K. In both countries, evidence of graphics information manipulation exists in the form of selectivity, measurement distortion, and presentational enhancement, while moderate evidence supports their hypothesis that U.K. companies are more likely than U.S. companies to adopt interpretative shading. These results indicate that graphs do not always fulfill their potential to communicate financial information more effectively to external users and frequently display bias (Beattie and Jones 1997). However, evidence of graphical manipulation exists, and in particular, companies are more likely to include graphs when the performance increases and are also more likely to exaggerate rather than understate time trends, giving a more favorable view of performance.

In the lights of the studies above mentioned, a notable emerging perspective to study social and environmental reporting and visual is the impression management. Graphs and visual tools are

both used as instrument to impress the investors. Considering that graphs represent an important corporate reporting communication format and they could be used as tool of manipulation, Jones (2011) tries to investigate the use and abuse of graph in social and environmental reports of UK companies. The research highlights a clear evidence of impression management in the use of graph. He finds that good news are more portrayed than bad news and, at the same time, companies that have high social and environmental impact tend to show relatively more good news than bad news in graphs; furthermore these companies distort graphs relatively more than low impact companies. Cho et al., (2012) investigate whether graphs in corporate sustainability reports are made in order to impress the readers and whether there are differences in the level of impression management due to different levels of reporting regulatory structure. The research shows that graphical presentation is systematically manipulated in order to paint a more favorable picture of the company; in fact firms are more likely to show favorable trend rather that unfavorable. Moreover, when material distortion exists, the bias in design presents an image in favor to the firm. Finally, it seems that companies that work in a less restrictive regulatory environments reporting appear to be more likely to engage in impression management in their use of graphs.

In sum, many studies attempt to analyze visual and graphs as measurement of company's violation of the fundamental principles of transparency (Beattie and Jones 1992, 2008) and reveal their role as impression management tools (Jones 2011, Cho et al. 2012).

17.3. Voluntary social and environmental reporting and impression management

The role of voluntary information, as extra-information that reduces the agency problem and opportunistic behavior, has been establish by previous researches. Despite that, there is still lack of research on the importance of non-financial information as monitoring role. Inspiring by the importance of non-financial reporting, a recent study tries to fill the gap in the literature. Indeed, Yi Lu et al., (2017) analyze how corporate social responsibility, as information that reduces the information asymmetries and increases the control on managers actions, has an impact on the value of cash holdings. Their findings show that firms with CSR reports disperse less cash than firms without CSR reporting. Non-financial information appears to be useful for the use of cash holdings and increases the level of information for investors. Thus, CSR is value relevant for investors and managers, aware of that, become careful and cautious when they make decisions.

Considering the impression management perspective, voluntary social and environmental reporting practices become ideal vehicles for impression management purposes because the aim is to produce a wide range of information, without following any mandatory law, directed to a number of stakeholders and society at large (Lightstone and Driscoll 2008, Linsley and Kajüter 2008, O'Keefe and Conway 2008; Dumay, 2012). Moreover among the different social and environmental tools, voluntary stand-alone social and environmental reports are considered particularly used by manager for favorably impress the readers' mind (Neu et al., 1998; Mahoney et al. 2013); narrative disclosure as environmental and socio information helps to "increase legitimacy in the wider world and facilitate the construction of a new and different image of the company" (Hopwood, 2009). Cho et al., (2010) indeed, prove that managers use social and environmental information for the opportunistic purpose of impress readers (Melloni, 2015). Relying on Merkl-Davies and Brennan framework on impression management, Cho et al. (2010) investigate the verbal tone and the language within firm's environmental disclosure. They find out that the language and the verbal tone are tools of impression and companies that are poor in terms of environmental performances are the ones that empathize good news, obfuscate bad news and use a confused language. A similar research is the one from Melloni (2015), which attempts to assess if intellectual capital information disclose within the integrated reporting is informative or is used with the aim of impression management. After an analysis of tone of disclosure, industry and firm size, she concludes that firms use intellectual capital disclosure in an opportunistic way. The voluntary nature and the independence from the financial statement seem to increase the managerial discretion in disclosing socio and environmental information. However in order to reduce the managerial discretion (and the related impression management intents) in the disclosing process, practitioners and academics promote the use of standard and guidelines (GRI, 2006; Belal and Roberts, 2010, O'Dwyer and Owen, 2005) and their use is investigated with content analysis techniques in order to evaluate the disclosure quality (Clarkson et al., 2008).

Merkl-Davies and Brennan (2011) discuss further the impression management by arguing that if managerial intent to impress the readers of the disclosure documents exists, also a receiver's reaction in response to managerial impression management exists as well, which can be positioned under the umbrella of four alternative theoretical perspectives: economics, behavioral finance/economics, sociological and critical perspectives. The economical and behavioral

perspectives are considered to be dominant and the latter encompasses the reaction caused on the readers when visual tools are used by managers to achieve the impression management (Merkl-Davies and Brennan, 2011). In this perspective the readers of the financial statement or of any other document of disclosure can be influenced by visual information and visual rhetoric. Due to the importance of social and environmental reporting and the role of visuals when facing the impression management discourse, this study aims to investigate the reader's reactions to the use of one particular type of visual, namely graphs, contained in stand-alone social and environmental reports by focusing on value relevance effects, reflective of the investors' perspective. In particular this study recognizes the increasing attention devoted to visual communication in accounting and social and environmental and aims to deepen that topics by investigating the receivers' viewpoint. Though the role of graphs in accounting is extensively studied, a lack of studies concerning the real effect of those tools on the readers' decision-making process still persists. The paper contributes to fill this gap in the literature; therefore we conduct an empirical study on social and environmental reports of Italian listed firms that involves both the graphs and narrative social and environmental information. Moreover, this study aims to investigate the reader's reactions to the use of graphs by focusing on value relevance effects, reflective of the investors' perspective by evaluating the investors' reaction to both the use of social and environmental information (Clarkson et al., 2008) and the graphs' distortion (Beattie and Jones, 1997).
In sum, based on the impression management theory (Merkl-Davies and Brennan, 2011), this study investigates the possibility that readers make decisions relying on non-financial information and visual devices, that eventually affects the market value.
The following research question is the result of the previous considerations.

RQ1. Do graphs' distortion and voluntary social and environmental information matter for investors?

17.4. The effect of the global financial crisis on investors' decisions

External and unpredictable factors influence the way companies communicate information and reader react to those. In times of relative market stability indeed investors could respond

differentially at social and environmental information and visuals than during shock events like the financial crisis.
The studies concerning the financial crisis period and the investors' reaction are relatively scant and concentrate the attention on financial information. Previous researches show that during the financial crisis the relevance of information changes (Devalle, 2012). In this regard Graham et al., (2000) suggest that during the global financial crisis accounting information is considered less important and in addition Morris et al., (2011) show that other information (i.e. environmental and social on human resources) increase in importance.
Davis-Friday et al., (2006) show that the accounting system affects the extent of change in the value relevance of book value resulting from the crisis. A study on Korean firms demonstrates that the value relevance of accounting earnings decreases from the pre-crisis period to the crisis period (Ho et al. 2001). Thus, previous literature allows to suppose that investors in a period of relative market stability are more interested in financial results rather than in other information, as for example in social and environmental data (Morris et al., 2011). The above-mentioned studies, indeed, show that a crisis period cannot be considered neutral in term of value relevance of the information disclosed to the readers of financial information and social and environmental information. So it seems logical to suppose that a crisis period cannot be considered neutral when considering visual images and their use as impression management tools. The financial crisis dramatically increases the investment risks of firms and the "herd behavior" of foreign investors contributes to the perceived risks (Morris et al., 2011). Hence, firms will be strongly motivated to reduce their associated risks by increasing their voluntary disclosure. The authors conclude that more disclosure could decrease risk perceptions and during the financial crisis, voluntary disclosure continues to increase, however, firm value decrease. Raithel et al., (2010) examine the value-relevance of corporate reputation during times of crisis and they found that corporate reputation is value-relevant during an economic shock. However the corporations are not able to elude the negative impact of the financial crisis.
Beltratti el al., (2013) analyze the value relevance and timeliness of write-downs within a sample of North American and European banks during the financial crisis (2007-2009). They find that the write-downs have an impact on stock prices and the information is value relevant during the crisis.

Wang and Ali in 2013 analyze the effect of the Global Financial Crisis on Chinese firms value and on the level of voluntary disclosure. Initially they test the increased level of disclosure as instrument that should help firms to increase their value and decrease the asymmetry costs. In a second stage they focus on the effect of financial crisis as element that changes firms equilibrium. They take into account the time period before and after the crisis (2008). They find that even though the level of voluntary disclosure and firms' value increase before the crisis, that level and value drop after the financial crisis. Financial crisis thus has a negative and significant impact on Chinese firms value.

Bepari (2015) analyzes the value relevance of earnings and book to value in a sample of Australian firms. He considers both the financial crisis period (2008-2009) and a period with no crisis. His initial expectation is that investors, during the crisis, care more about information on book to value instead of earnings. What happens instead is the opposite; the value relevance of book to value decreases and the value relevance of earnings increases during the financial crisis, compared to the non-financial crisis once. In a second stage he analyzes two subsamples of firms based on positive and negative earnings, finding that investors of firms with positive earnings care more about earnings and not book to value. Book to value is value relevant for investors of firms with negative earnings. He thus concludes that investors, during the financial crisis, change their perspective and the value relevance of information change as well.

Recently, Badenhorst and Ferreira (2016), examine if the value relevance of recognized deferred tax within a sample of Australian and UK firms is affected by financial crisis. Within a sample of firms from 2001 to 2005 they find that the crisis lead managers to manipulate the deferred tax assets, implying that investors during the financial crisis change their behavior with an impact on the value relevance of information.

At the current stage there is a lack of studies, which investigate how the occurrence of a crisis can influence the way in which investors perceive the visual images contained in the disclosure documents.

The influence of the global financial crisis in attributing value to both social and environmental information and the lack of studies on the influence of visuals during this time suggests our second research question.

RQ2: Does the financial crisis have an impact on the level of disclosure and graphs' distortion?

18.Method

From a methodological standpoint this study rails on a mixed method: in the first stage it performs a content analysis from the stand-alone social and environmental reports of the Italian companies studied, and in second stage, it regresses the results of the content analysis in form of indexes, using the Ohlson model.

18.1. Sample

This study focuses on companies listed on the Milan Stock Exchange. The period of investigation is from 2004 to 2013, and it takes into account the impact of the financial crisis that started in Italy at the end of 2008, through a dummy variable.

The information used to determine the environmental and social index is collected from company sustainability annual reports (which are the official document at voluntary disclosure level) drawn up using the GRI guidelines, authorized at international level. The accounting information and market values required for the research are collected using a two-step process. In the first step, we collect data from Datastream/Compustat databases and during the second step we collect the missing data looking at:

1. Consolidated financial statements of the listed companies.
2. The Milan Stock Exchange website for market values.

The companies excluded from the sample are the ones still missing after the second step.

Only 63 listed companies published a social and environmental report for two consecutive years, which is the minimum required for our analysis. Of those, only 42 use GRI guidelines in their CSR reporting and present all information necessary for the study. These firms represent 52.17% of the entire stock market capitalization as of April 30, 2014.

In this study we use earnings, book value and the number of shares as of December 31 of each year considered. Given that there is a time lag problem between the market value and accounting

information, we measure the market value as of April 30 of the year following the date of the financial statements (Barth et al., 2008; Harris and Muller, 1999).
According to Barth and Clinch (2009), a deflated specification of the modified Ohlson (1995) model is the most effective way to mitigate the potential of incorrect inferences based on size differences (scale effect). All accounting variables for number of shares are deflated (Barth and Clinch, 2009).

18.2. Content analysis

Content analysis is one of the most used methods in social and environmental reporting research (Krippendorff, 2004). A number of alternative possibilities for applying this method are available (Unerman, 2000) and recently some authors demonstrate the importance of taking into account visuals in content analysis methodologies (Pesci and Costa, 2014).
However in this paper a manual content analysis is used in order to establish two main indexes: the GRI content Index and the Graph discrepancy Index. The manual content analysis allows researchers an in-depth knowledge of the examined documents (Beattie and Thompson, 2007).

18.2.1. GRI Content Index

Due to the voluntary nature of the majority of social and environmental accounting practices, some scholars promote and suggest the use of standards or guidelines (Belal and Roberts, 2010; O'Dwyer and Owen, 2005), such as GRI's Sustainability Reporting Guidelines (GRI guidelines), to improve the quality and reliability of social and environmental accounting reports. Even though the use of GRI guidelines is a topic of study and discussion (Wills, 2003; Guthrie and Farneti, 2008; Moneva et al., 2006; Bouten et al., 2011), the effect of their adoption and the relationship between social and environmental disclosure and corporate financial performance (CFP) during the GFC remains sparsely studied.
Clarkson et al. (2008) develop a content analysis index based on the GRI guidelines to assess the level of voluntary disclosures in environmental and social responsibility reports. Following this indicator, we determine one disclosure index for environmental disclosure (ENV), one for social performance (SOC, which in our study only concerns human resources) and one that considers both types of disclosure (EN-SO).

The GRI issued its first set of guidelines in 2000. The second set of guidelines (known as the G2 guidelines) was issued in 2002 and the third in 2006 (G3 guidelines). According to the changes of guidelines, we determine the disclosure index by considering the level of disclosure on socio-environmental performances from G2 guidelines for the period 2004–2005 and G3 guidelines for the period 2006–2012.

For each GRI Content Index, a score from 0 to 6 is assigned. The scores are assigned following these rules:

score 0 – data is not presented

score 1 – performance data is presented

score 2 – performance data is presented relative to peers/rivals or industry

score 3 – performance data is presented relative to previous periods

score 4 – performance data is presented relative to targets

score 5 – performance data is presented both in absolute and normalized forms

score 6 – performance data is presented at the disaggregate level (i.e., plant, business unit, geographic segment)

Then we determine the CSR disclosure index as the average of the scores attributed to each GRI content index. In particular, ENV is the disclosure environmental index determined as the average of the scores attributed to each "EN" GRI index. SOC, instead, is the disclosure social index determined as the average of the scores attributed to each "LA" GRI index.

18.2.2. Graph Discrepancy Index (GDI)

The literature recognizes that graphs are used in two fundamental and different ways: to analyze data and to present and communicate information to someone. This research focuses on the second function.

As evidenced in the literature review section graphs appear in a huge number of publications and even though the attention on this topic is turned on, it received a significant consideration just recently.

Distortion of graphs could be attributable to some causes: for instance when graphs present a non-zero axis, a broken axis or a non-arithmetic scale. Kosslyn (1989) shows that the inclusion of the value zero is essential since "the origin of the two axes in Cartesian space is usually the

same point". Schmid and Schmid (1979) suggest that a broken axis or a non-arithmetic scale also result in distortion, since equal distances along the axis do not represent equal amounts. However in this paper the graphs distortion is measured by following the Beattie and Jones discrepancy index that is an adaptation of Tufte's lie factor suggested by Taylor and Anderson (1986). In particular, the Graph Discrepancy Index is determined in the following way (Beattie and Jones, 1997):

GDI = [(a/b) – 1]
Where
a = percentage change (in cm) depicted in graph;
b = percentage change in data.
The index is zero in case of absence of measurement distortion, positive if the graph exaggerates the data trend, and negative if the graph understates the trend.

18.3. Regression Model

In order to measure the value relevance effect, we add the indicators previously structured within the Ohlson's (1995) model. In particular, to test the first research question we estimated the following equations:

$P_{it} = \beta_0 + \beta_1 BVS_{it} + \beta_2 EPS_{it} + \mathcal{E}_{it}$ [1]
$P_{it} = \beta_0 + \beta_1 BVS_{it} + \beta_2 EPS_{it} + \beta_3 EN\text{-}SO_{it} + \beta_4 GDI_{it} + \mathcal{E}_{it}$
[1a]
$P_{it} = \beta_0 + \beta_1 BVS_{it} + \beta_2 EPS_{it} + \beta_3 ENV_{it} + \beta_4 SOC_{it} + \beta_5 GDI_{it} + \mathcal{E}_{it}$
[1b]

Where:
P_{it} is the share price four months after the end of the year (Dontoh et al., 2007).
β_0 is the constant; BVS_{it} is the book value per share at 31/12/t.
EPS_{it} is the earning per share at 31/12/t.
$EN\text{-}SO_{it}$ is the environmental and social index at 31/12/t.

ENV_{it} is the environmental index at 31/12/t.
SOC_{it} is the social index at 31/12/t.
GDI_{it} is the Graph Discrepancy Index at 31/12/t.
β_1 and β_5 are the coefficients of independent variables.

The above equations help us studying if the explanatory power of the models (measured in terms of the adj. R^2) increases when CSR disclosure Index and Graph Discrepancy Index are added to the regression model as independent variables. To analyze the usefulness of environmental and social information and the impact of the graph on investment decisions, we use an incremental F-test (Stock and Watson, 2009); we thus measure the statistical significance of the introduction of a new variable ($EN\text{-}SO_{it}$, ENV_{it}, $SOC_{it\text{-}}$, *or* GDI_{it}) to the model [1a and 1b]. In particular, the test examines if the change in the adj. R^2 is significant.
Our analysis covers a period of nine years. At the end of 2008, Italy has been affected by the financial and economic crisis; this event may have influenced the relevance of CSR and accounting information. We measure the effect of crisis in the second step, introducing a dummy variable, C, that assumes a value of 1 for the 2009–2013 period and 0 otherwise. In particular, to test the second research question we estimate the following equation:

$$Pit = \beta_0 + \beta_1 BVS_{it} + \beta_2 EPS_{it} + \beta_3 EN\text{-}SO_{it} + \beta_4 GDI_{it} + \beta_5 C + \beta_6 BVPS_{it}*C + \beta_7 EPS_{it}*C + \beta_8 EN\text{-}SO_{it}*C + \beta_9 GDI_{it}*C + \varepsilon it \qquad [2a]$$

$$Pit = \beta_0 + \beta_1 BVS_{it} + \beta_2 EPS_{it} + \beta_3 ENV_{it} + \beta_4 SOC_{it} + \beta_5 GDI_{it} + \beta_6 C + \beta_7 BVPS_{it}*C + \beta_8 EPS_{it}*C + \beta_9 ENV_{it}*C + \beta_{10} SOC_{it}*C + \beta_{11} GDI_{it}*C + \varepsilon it \qquad [2b]$$

The coefficient of interaction terms (*BVPS*C, EPS*C, EN-SO*C, ENV*C, SOC*C- and GDI*C*) measures the effect of the crisis on the relevance of information.
These relationships is studied in a pooled model, controlling both for the year (Year dummies included for models 1, 1a and 1b) and the industry effects (Industry dummies included for models 1, 1a, 1b and 2). The coefficients in the equations are estimated using the ordinary least squares technique. We estimate Heteroscedasticity-consistent standard errors using White's procedure were estimated (White, 1980).

To measure the existence and intensity of multicollinearity; we calculate a specific indicator called variance inflation factors (VIF). As a general rule, it is common to consider a limit value of VIF equal to 4.
A sensitivity analysis is performed to verify the robustness of our findings. We also analyze the impact of the loss firms and the size in the assessment of value relevance (Mitra and Hossain, 2009; Entwistle at al., 2010). In order to consider the effect of firms' size, we correct the equations by adding another independent variable, the Size, that is the natural logarithm of the book value of the total assets (So and Smith, 2009; Bartov at al., 2005).

19.Findings

19.1. Descriptive statistics and correlation matrix

Descriptive statistics are presented in Table 1 for the full period and for the pre-crisis and crisis sub-periods. In the column labeled Mean, we show the t-test for the mean group difference to compare the mean of the variables in two groups of years, 2004–2008 (pre-crisis; 6th column) versus 2009–2013 (crisis; 10th column).
The mean value of share price (P) in the pre-crisis period is 10.712 and is 6.4825 during the crisis. Looking at this data, the trend decreases because the crisis has reduced expectations of positive results with the consequent reduction in price. This result is confirmed by the evolution of the mean value of EPS that is halved during the crisis. For these variables, the t-test for the mean differences is significant for the pre-crisis period and the crisis period, showing that the crisis has an important effect in modifying the value of share price. The mean value of BVPS does not change during the two different periods because the companies increased their equity in order to avoid liquidation. This result is confirmed by the mean differences, which are not significant.
The mean value of the EN-SO index increases over time and this difference is statistically significant. The increase of this indicator depends on the ENV index, whose mean value increased between the two sub-periods from 1.474 to 1.7503 (statistically significant). In fact, the mean value of the SO index changes only a little (from 1.817 to 1.913), and the difference is not significant.

The size in logarithm is stable over time, but Loss (dummy variable) increases because during the financial crisis the number of firms that obtains losses increases.
GDI changes during the crisis but the difference is not significant.

Table 1 should be added here

The correlation matrix (Table 2) shows that there is no problem of multicollinearity between EPS and BVPS. The multicorrelation between EN-SO and ENV or SOC is not a problem in the models because the equations have been regressed using only one CSR Disclosure Index at a time. These results are also confirmed by the calculation of the VIF. This indicator is always less than 4. P is statistically correlated with EPS and BVPS in this univariate test. This suggests that the accounting value of Italian-listed companies is relevant to investors.
In addition, considering GRI Disclosure Index, only ENV is significantly correlated with share price, but this relationship is negative and limited (only -0.11112). The correlation confirms the results of the regressions presented in the following paragraphs.
GDI is correlated by BVPS and SOC but this relationship is minimum.

Table 2 should be added here

19.2. Regression model

Table 3 shows the results of the regressions calculated in order to answer the first research question. The table shows the results of the equations with and without control variables. In addition, in the last line of the table, the incremental F-test is showed, which has been used to assess the statistical significance of the change in the R^2 of the two models that differ by one variable. Using this test the significance of the introduction of the CSR disclosure index and GDI in model [1] is evaluated. For example, 2.45 is the incremental F-test value used to measure the significance of the introduction of ENV, SOC and GDI in model [1] (with control variables) and this value measures the relevance to investors of the introduction of this information.

Table 3 should be added here

The coefficients for EPS and for BVPS are significant with positive sign. In Model 1, the adjusted R^2 equals 0.666 and the F-statistic are significant; the adjusted R^2 equals 0.678 for the model with control variables. Adding the EN-SO and GDI variables (Model 1a), the adjusted R^2 increases (both with and without control variables) and the incremental F-test is statistically significant. Considering ENV and SO by themselves (Model 1b), the adjusted R^2 increases to 0.672 (0.682 for the model with control variables) and the incremental F-test are statistically significant. These results describe the relevance of environmental and social information for investors and the significant value of GDI describes that the discrepancy is relevant too.

The analysis of the signs of the variables considered is very important. The regression shows a negative relation for ENV and for SOC. It is possible that investors perceive that environmental performance is used for the 'window dressing' of book values and financial performance. Investors, whose interest is the profit in the short term, perceive that environmental activities reduce profitability without a corresponding reduction of risk, thus react negatively.

Moreover the market is short-term-oriented and investors do not consider longer-term environmental information when making investment decisions. Hence, investors do not reward companies that are rated highly in terms of environmental performance. The amount of money invested in environmental and ethical funds does not seem to be large enough to reward high environmental performance. Of course, even for these funds, environmental performance might be a subordinate investment criterion (Hassel et al., 2005).

The coefficient of SOC is negative but not relevant.

The coefficient of GDI is significant and positive both in model 1a and in 1b. The expected sign shows that the discrepancy of graphics, measured by the index proposed by Beattie and Jones (1997), is a positive factor in their relevance.

Table 4 shows the results for the second research question. In this analysis, we perform the change in relevance during a financial crisis using a dummy variable. Regarding the CSR disclosure index, we analyze if the crisis affects the value relevance of this information by considering the sign and the statistical significance. In order to consider the effect of the crisis, we should read jointly the variable coefficient (for example ENV) with that iteration terms (for example ENV * C).

ENV*C and SOC*C are statistically significant at the 5% level and the coefficient has a positive sign for the first variable and negative for second. This result mitigates the negative relationship

between ENV and the price $(-\beta_3 + \beta_8)$ and is justified by the increased attention that investors pay to non-financial information during the financial crisis. Investors probably reduce the focus on earnings because this value describes the past performance of the companies, while ENV describes the investment that will produce results in the future. Therefore, this information, which expresses a long run perspective, becomes more important during times of crisis because the investors focus more on future developments of the companies.

Looking at SOC information, the sign changes during the financial crisis. In this case, the investors consider negatively the social information during financial crisis, probably because are more careful about investments and financial results.

Table 4 should be added here

Finally, the GDI increases the positive relevance for investors. We think that the discrepancy is positive during the crisis because in perspective it measures the ability of corporate recovery.

20.Conclusions

This paper analyzes the value relevance of non-financial information and graphs in the Italian context before and during the global financial crisis by using the interpretive lens of impression management (Brennan et al, 2009; Merkl-Davies and Brennan, 2011).

In particular we consider the GRI guidelines' content to evaluate non-financial information (Clarkson et al., 2008), and the graph's distortion effect to evaluate the use of graphs (Beattie and Jones, 1997). The results about the pre-crisis period show that non-financial information is influential, while the presence of visual (graph) is not that significance. Indeed, the non-financial information is negatively associated with the market value (model 1a and 1b), meaning that this type of information is considered able of (negatively) impress the readers of voluntary disclosure document. This argument become more effective when we consider the environmental information. This result might be due to the negative judgment that investors attribute to the investments in non-financial tools (Morris et al., 2011). Another possible explanation rails on the opinion that investors could develop stand-alone social reports for legitimacy purposes (Lindblom, 1994; Suchman, 1995; Mahoney et al. 2013). However, another interesting results about the time before the global financial crisis is the low interest showed by the investors for

visual tools like graphs. Even though literature devotes ample space to graphs' distortion as impression management technique (Beattie and Jones, 1992; Jones, 2011; Cho et al., 2012) the distortion plays a less significant influence on the investors' decision-making process when compared to social and environmental information. This result cannot be due to the unconsciousness about the fact that graphs are distorted; the sign indeed is negative as expected before financial crisis and the distortion shows a certain degree of significance.
Furthermore during the crisis the level of significance of environmental information seems to increase under certain conditions (model 2b) and the visual tools show incremental value relevance. Another interesting result concerns the effect of the crisis on the variables' signs. The global financial crisis changes the investors' perspective on the decision-making process: from a short-term vision to a medium-long term period. This last condition allows investors to appreciate and consider long-term investment, like environmental investment; thus the information is relevant. In the same period the presence of graph starts to have a slightly incremental influence in impressing the investors by following an impression management path.
In sum, the first research question concerning the power of non financial information and visual tools to impress readers (Brennan et al, 2009; Merkl-Davies and Brennan, 2011) presents the following answers: 1. Non-financial information (especially environmental information) is able of impressing the investors. 2. Graphs result in a scant power as impression management vehicles.
The second research question about the possibility that the global financial crisis changes the distortion effect of graphs seems to find a positive answer by considering the Italian context, especially for environmental information.
This study represents a first attempt of evaluating impression management using the readers' perspective in relation to two discussed topics: non-financial information and visuals. A possible limitation is related to the analysis of a single Country, Italy. Indeed, the development of the mixed method based on manual content analysis jointed to the use of a regression model is time consuming but allowed researchers to test their questions only in a country-specific design. However the developed indexes offer additional interesting information on the type of disclosure worth of consideration and the second index in particular represents a novelty for the literature on the use of visual tools in accounting (Warren, 2005; Davison, 2007, 2009, 2011; 2014; Bernardi et al. 2002, 2005, Brown 2010; Parker, 2009; Harasky, 2012; Pesci et. al, 2015).

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Table 15. Descriptive statistics

Variables	Full period				Pre-crisis 2004-2008				During-crisis 2009-2013			
	Mean	**Std. Dev.**	**Min**	**Max**	**Mean**	**Std. Dev.**	**Min**	**Max**	**Mean**	**Std. Dev.**	**Min**	**Max**
EN-SO	1.731	0.555	0.444	3.089	1.587	0.517	0.462	2.800	**1.808 (0.003)**	0.561	0.444	3.089
ENV	1.653	0.648	0	3.167	1.474	0.651	0	3.142	**1.750 (0.001)**	0.627	0	3.167
SOC	1.880	0.613	0.400	3.667	1.818	0.615	0.867	3.529	1.913 (0.244)	0.611	0.400	3.667
P	7.927	7.525	0.010	38.330	10.712	8.564	0.298	33.930	**6.429 (0.000)**	6.448	0.010	38.330
Loss	0.165	0.372	0	1	0.047	0.213	0	1	**0.227 (0.0003)**	0.421	0	1
EPS	0.413	0.811	-4.056	4.298	0.804	0.893	-2.041	4.298	**0.203 (0.000)**	0.679	-4.056	1.912
BVPS	5.523	4.559	0.088	19.903	5.937	4.779	0.415	19.645	5.300 (0.300)	4.435	0.088	19.902
Size	16.204	2.272	9,954	27.235	16.263	2.125	9.954	19.765	16.172 (0.764)	2.353	11.33	27.236
GDI	2.629	15.611	-0.988	168.699	3.871	21.333	-0.987	168.690	1.961 (0.364)	11.439	-0.759	84.502

In bold text the t-test of the mean difference: in the column of the mean for period of crisis (2009-2013) is presented the t-test with its difference with pre-crisis period. t-statistics and *** p<0.01, ** p<0.05, * p<0.1 are presented. *P* share price four months after the end of the year, *EPS* earning per share, *BVPS* book value per share, *Size* natural logarithm of the book value of the total asset, *Loss* is equal to 1 if earnings are negative and 0 otherwise, *EN-SO* environmental and social disclosure index, *ENV* environmental disclosure index, *SO* social disclosure index, *GDI* Graph Discrepancy Index.

Table 16. Correlation matrix

Variable	EN-SO	ENV	SOC	P	Loss	EPS	BVPS	Size	GDI
EN-SO	1								
ENV	**0.943**	1							
SOC	**0.717**	**0.443**	1						
P	-0.066	**-0.111**	0.064	1					
Loss	0.093	**0.110**	-0.002	**-0.288**	1				
EPS	-0.040	-0.046	0.003	**0.626**	**-0.557**	1			
BVPS	0.122	**0.113**	0.103	**0.573**	**-0.179**	**0.431**	1		
Size	0.239	**0.136**	**0.355**	0.007	0.079	-0.017	**0.145**	1	
GDI	0.064	-0.071	**0.328**	-0.097	-0.076	-0.036	**-0.144**	-0.010	1

Significance at 10% in bold text. *P* share price four months after the end of the year, *EPS* earning per share, *BVPS* book value per share, *Size* natural logarithm of the book value of the total asset, *Loss* is equal to 1 if earnings are negative and 0 otherwise, *EN-SO* environmental and social disclosure index, *ENV* environmental disclosure index, *SO* social disclosure index, *GDI* Graph Discrepancy Index.

Table 17. The relevance before the financial crisis

Variables	Models					
	1		1a EN-SO		1b ENV + SOC	
Constant	1.508 (3.99)***	4.805 (3.03)***	2.957 (3.26)***	5.301 (3.16)***	2.734 (2.89)***	5.230 (3.14)***
EPS	6.580 (12.03)***	7.256 (11.29)***	6.390 (11.66)***	7.224 (11.26)***	6.393 (11.63)***	7.203 (11.18)***
BVPS	0.582 (8.27)***	0.577 (8.12)***	0.611 (8.61)***	0.593 (8.32)***	0.612 (8.58)***	0.595 (8.29)***
EN-SO			-0.957 (-1.93)*	-0.815 (-1.65)*		
ENV					-0.726 (-1.68)*	-0.842 (-1.77)*
SOC					-0.115 (-0.21)	0.299 (0.52)
GDI			0.609 (1.72)*	0.697 (1.97)**	0.581 (1.65)*	0.625 (1.73)*
Loss		1.568 (2.18)**		1.831 (2.53)**		1.829 (2.50)**
Size		-0.235 (-2.40)**		-0.194 (-1.97)**		-0.223 (-2.15)**
Yeardummies	Included	Included	Included	Included	Included	Included
Industrydummies	Included	Included	Included	Included	Included	Included
Adj. R^2	0.666***	0.678***	0.673***	0.684***	0.672***	0.682***
Incremental F test			3.45**	3.39**	2.25*	2.45*

t-statistics in parentheses; *** p<0.01, ** p<0.05, * p<0.1. EPS earning per share, BVPS book value per share, Size natural logarithm of the book value of the total asset, Loss is equal to 1 if earnings are negative and 0 otherwise, EN-SO environmental and social disclosure index, ENV environmental disclosure index, SO social disclosure index, GDI Graph Discrepancy Index.

Table 18. The relevance during financial crisis

Variables	Models			
	2a		2b	
	EN-SO		ENV + SOC	
Constant	6.688 (3.48)***	9.878 (3.53)***	4.324 (2.21)**	7.972 (2.80)***
EPS	11.945 (8.58)***	12.159 (8.75)***	4.420 (5.15)***	4.558 (5.28)***
BVPS	0.292 (1.48)	0.288 (1.46)	0.523 (3.27)***	0.535 (3.35)***
EN-SO	-3.533 (-3.23)***	-3.442 (-3.24)***		
ENV			-3.547 (-4.14)***	-3.612 (-4.24)***
SOC			2.857 (3.12)***	3.445 (3.61)***
GDI	0.414 (0.83)	-0.0009 (-0.05)	-0.061 (-2.52)**	-0.065 (-2.69)***
C	-3.596 (-1.62)	-3.902 (-1.98)**	-0.977 (-0.34)	-0.815 (-0.28)
EPS*C	-7.219 (-3.17)***	-6.228 (-2.52)**	-0.798 (-0.75)	-0.468 (-0.43)
BVPS*C	0.394 (1.70)*	0.392 (1.70)*	0.125 (0.67)	0.137 (0.74)
EN-SO*C	2.539 (2.06)**	2.340 (2.19)**		
ENV*C			3.483 (2.47)**	3.364 (2.39)**
SOC*C			-3.438 (-2.12)**	-3.637 (-2.25)**
GDI*C	-0.005 (-0.15)	0.467 (0.51)	1.705 (1.65)*	1.714 (1.68)*
Loss		1.646 (1.54)		1.620 (1.39)
Size		-0.210 (-1.60)		-0.298 (-1.88)*
Industrydummies	Included	Included	Included	Included
Adj. R^2	0.649	0.654	0.537	0.543***

t-statistics in parentheses; *** p<0.01, ** p<0.05, * p<0.1. EPS earning per share, BVPS book value per share, Size natural logarithm of the book value of the total asset, Loss is equal to 1 if earnings are negative and 0 otherwise, EN-SO environmental and social disclosure index, ENV environmental disclosure index, SO social disclosure index, GDI Graph Discrepancy Index.