



THE IMPACT OF BOARD DIVERSITY ON OPERATING
PERFORMANCE AND FIRM RISK: EVIDENCE FROM
THE ITALIAN MARKET

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Abstract

This paper analyses the relationship between board diversity and some board operating performance but also the relationship between board diversity and enterprise risk. The analyses, carried out on a sample of 249 Italian companies during the period 2006-2009, show that diversity affects the operating performance of the board. The results show a significant positive relationship between the presence of independent women board directors and the frequency of the board meetings, but a negative relationship between the number of meetings and the nationality diversity. With regard to the intermediate performance, there is a significant relationship with gender diversity. Besides, the analysis shows a negative relationship between firm systematic risk and number of foreign directors.

Keywords: Board Diversity; Board of Directors; Audit Committee; Risk; Corporate Governance

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1. Introduction

In recent years, many studies focus on board diversity. The term "board diversity" can have several meanings, linked to differences in board composition in terms of ethnicity, age, education, nationality and gender. In this study, we focus on two kind of board diversity: the gender and the nationality.

After the financial crisis, several governments started to issue new laws on board composition. In June 2011, the Italian Parliament issued a legislation on "gender quotas". Most of these legislative initiatives are based on the idea that the presence of

women on boards could significantly affect the quality of the corporate governance system.

Another aspect that is destined to change is the composition of boards in term of directors' nationality. With the increase of cross country mergers and acquisitions, the quota of board members representing foreign shareholders is increasing in Italian companies as well.

The reasons which lead to prefer a greater board diversity may be different: to improve company performance, to mirror the market, to enhance quality decision-making, to improve corporate governance and ethics and to have a better use of talent pool (European Commission 2012).

Our paper is one of the few investigating the impact of board diversity considering both gender and nationality diversity. First, we investigate the relationship between board diversity and operating performance of the boards of directors of 249 Italian listed companies between 2006 and 2009. Second, we study the kind of relationship existing between board diversity and risk.

The paper is organized as follows. Section 2 provides a literature review and discusses the main hypotheses. Section 3 shows the sample and the methodology employed in the empirical analyses, the results of which are reported in Section 4. The last part is dedicated to conclusions.

2. Literature Review

The board of directors (hereinafter "BoD") represents the most important control mechanism over the potentially opportunistic behaviour of managers (Fama and Jensen, 1983).

In Italy, best practice in corporate governance is laid down in the Code of Self-Discipline ("Codice di Autodisciplina" 1999; 2002; 2006; 2010; 2012), which provides instructions for the composition of boards, the appointments of BoD, committees and board of auditors, the presence of independent directors, as well as indications for the remuneration of directors. The Code does not, however, contain any specific indications on board diversity.

Previous studies on board diversity, referred to aspects such as demographic, education, gender (van Ees et al., 2003; Barako and Borwn, 2006; Adams and Ferreira, 2009; Virtanen, 2010; Darmadi, 2011), ethnic or nationality diversity (Richard, 2000; Fairfax, 2005; Ruigrok et al. 2007), have produced very heterogeneous results.

Some studies, traceable to the resource dependence theory, investigate the relationship between board diversity and economic-financial performance (Sigh et al., 2001; Carter et al., 2003; Erchart et al., 2003; Carson et al., 2004; Roberson and Park, 2007; Vafaei et al., 2012). Some authors highlight a positive relationship between performance and the presence of women on board of directors (Waddock and Graves, 1997; Sigh et al., 2001; Carter et al., 2003; Erchart et al., 2003; Nguyena and Faff, 2006; Adams and Ferreira, 2009; Lückerrath-Rovers, 2011) Other studies reach opposite conclusions. Van der Walt and Ingley (2003) state that the problem is above all ideological and social, as there is no solid empirical evidence to support the hypothesis that identifies gender diversity as a determining factor of better performance. Similar conclusions are reached in the studies by Van der Walt et al. (2006), Rose (2007), Campbell and Minguez-Verà (2008), Marinova et al. (2010) and Dobbin and Jung (2011).

On the other hand, Francoeur et al. (2008), Minguez-Verà et al. (2010), Darmadi (2011) and Mirza et al. (2012) find a negative relationship

between the number of women on the board and financial performance. Also Wellalage (2012) shows a negative relationship between gender diversity and firm value measured by Tobin's Q and an increasing company agency cost when there are a lot of women on board. On this topic, Goodstein et al. (1994) state that the presence of a greater diversity on board cause a significant constraint on strategic change.

Finally, Wachudi and Mboya (2012), in a study on a sample of banks of Kenya, find a no significant relationship between the presence of female directors on boardroom and the bank performance.

About the studies on nationality diversity, their results are more consistent than those on gender diversity. Richard (2000) and Ruigork et al. (2006) find a positive relationship between the number of foreign members on the boards and financial performance. Marimuthu (2008) gain the same results: in a study of a sample of Malaysian companies, he finds a positive relationship between financial performance (measured in terms of ROA) and the presence of foreign members on the board.

Only a few studies in literature focus on the impact of diversity on the operating performance of the BoD. Gul et al. (2008), in a study carried out on US companies between 2001 and 2003, show that companies with a higher percentage of women on the board demand more commitment from their audit committees in the execution of their tasks. The authors underline that such contribution is higher in circumstances of information asymmetry, organisational complexity and in the presence of the so-called "ethic dilemma" (defined as the situation which implies a conflict between different moral imperatives, where the choice of one implies the transgression of another). On this topic, Peterson and Philpot (2007) and Adams and Ferreira (2009) also note that female board members are more likely to take part in audit and nomination committees, while, in contrast to men, they are less interested in chairing the remuneration committee; this thus demonstrates women's propensity towards monitoring activities. Moreover, Adams and Ferreira (2004, 2009) find that in companies with a higher percentage of women on the board, control activities are carried out more assiduously through more frequent meetings of the committee, the control over the activities of the CEO is more rigorous (through a more frequent turnover of the top management) and there is greater alignment with the interests of the shareholders (through a fairer remuneration system and greater incentives linked to company performance). The authors therefore state that the effect of female board members on the efficiency of BoD operations can be compared to that of the independent board members proposed in theory. Consistent with this idea, Xuewen (2011), in a study on Chinese listed companies, finds that the gender diversity of BoD, the board independence and the board diligence (measured by the numbers of board meetings) are positively associated to the audit

quality, measured by the audit fees, while the board size presents a negative relationship with the audit fees.

Moreover, Byoun et al. (2011) find that firms with diverse boards are more likely to pay dividends and tend to pay larger dividends than those non-diverse board. The authors show that the impact of board diversity on dividend payout policy is conspicuous for firms that present greater agency problems of free cash flow, suggesting that the board diversity helps to mitigate these problems. So, Byoun et al. (2011) sustain that the presence of female on the BoD enhances the monitoring function of directors for the benefit of shareholders. Besides, Chapple et al. (2012), in a study led on a sample of US firms, analyze if the presence of women on board and on the audit committee can have an impact on the going concern opinions³⁵. The authors show the companies which present at least one woman on board have less likelihood to receive a going concern opinion, this is in line with the theory that the presence of women on board increases the firm performance. Finally, authors underline that the presence of women on the BoD is positively related with the number of board meeting, and firms with more women in the audit committee present a higher board and audit committee meeting too.

With regards the presence of foreign directors on the board, Masulis et al. (2009) study the impact of board diversity on monitoring activities. The authors achieve discordant results: foreign board members tend not to take part in board meetings more than "domestic" members; the main cause of this is due to the logistical difficulties posed by geographical distance. However, the authors underline a positive contribution of foreign board members in terms of international experience and background. Moreover, Salleh et al. (2006) study the relationship between the audit quality (measured by the audit fees) and the composition of the BoD. The authors find that the presence of independent directors is positively related with the audit quality, but they do not find a significant relationship between the audit fees and the presence of directors of different ethnicity.

Another important aspect considered in literature is the relationship between board diversity and firm risk. Several authors (Gulamhussen and Santa 2010; Minguez-Vera and Martin 2010) find a negative correlation between the two variables: this result may be explained by the theory that women are more risk-averse than men. For this reason, if the presence of women on boards is high, firms tend to run fewer risks (Jianakoplos and Bernasek, 1998; Smith et al.,

2005; Olson et al., 1992). On the contrary, Berger et al. (2012) find that an increase of number of female directors on boardroom may lead to a more risky conduct of business. This can be due to the different background that characterized female directors (Dunn 2010).

In our knowledge, only few studies (Assonime, 2010; Bianco et al., 2011) has investigated the relationship between gender and nationality diversity on operating performance and firm risk on the Italian market. In Italian boards the presence of women is currently low. In 2009, there were about 160 listed firms without any women on the board, although an analysis conducted by Assonime (2010) shows an increase over time in the presence of female directors. The same picture applies if we consider foreign directors.

Bianco et al. (2011), in a study carried out on 262 Italian listed companies in 2009, find that family affiliated women are presented in smaller firms, and that non-affiliated women are presented in bigger companies where the presence of foreign shareholder is more substantial. The authors show that firms with at least one female (both affiliated and non-affiliated) on board have lower board attendance and lower board meetings than firms without women. In our knowledge, so far no study has investigated neither the relationship between nationality diversity and BoD meetings (a proxy for operating performance) nor the link between the presence of independent female directors in boards and and BoD meetings in the Italian market. For this reason we developed hypotheses 1 and 2:

H₁: *The presence of independent female directors on BoD leads to more BoD meetings*

H₂: *The presence of foreign directors on BoD leads to more BoD meetings*

Referring to the monitoring activity, Assonime (2010) finds that the number of both board and committee meetings in Italian companies is steadily increasing; this would appear to be due to the significant increase in meetings carried out by the largest banking groups, which tend to meet more frequently than non-financial corporations. In 2010 the average number of board meetings of Italian companies was 10, with a strong variation between sectors (15.5 for financial and 9.3 for non-financial companies). Carretta et al. (2005) also find that the frequency of annual meetings of the BoD and all committees is higher in financial than non-financial corporations. One explanation of this phenomenon could be that the BoD and committees of financial corporations are required "to take on a key role in the process of control of corporate objectives and management behaviour, acting as a guarantee for all stakeholders".

In our knowledge, so far no study has investigated the relationship between gender and nationality diversity and audit committee meetings (a

³⁵ The going concern opinion is usually a proxy of audit quality (Knechel and Vanstraelen, 2007). The going concern opinion is a particular manifestation of a management crisis – the board has decided there is a material uncertainty relating to operations and has disclosed this to stakeholders (Chapple et al., 2012).

proxy for operating performance). For this reason we developed hypotheses 3 and 4:

H₃: *The presence of women in audit committee leads to more audit committee meetings*

H₄: *The presence of foreign directors on BoD leads to more audit committee meeting*

Finally, in order to investigate the relationship between gender and nationality diversity and firm risk in the Italian market, we developed hypotheses 5 and 6:

H₅: *A negative relationship exists between the presence of women on BoD and firm systematic risk*

H₆: *A negative relationship exists between the presence of foreign directors on BoD and firm systematic risk.*

3. Sample and methodology

The sample used in this survey is composed of 249 companies listed on the Italian market between 2006 and 2009. Through Poisson and OLS regressions using panel data, we assessed the extent to which board diversity affects the board operating performance and the firm risk. In order to test these relationships, we used some control variables that, in view of the previous literature, could contribute to explaining, together with board diversity, these two dependent variables. The variables were selected for each company in the sample for 2006 (163 observations), 2007 (244 observations), 2008 (232 observations) and 2009 (215 observations), for a total of 854 observations.

3.1 Measurement of board diversity

The independent variables used in the empirical analysis concerning board diversity are: the presence of independent women in the BoD, the presence of foreign directors in the BoD and the presence of women in the audit committee. The first two variables were calculated in percentage terms, the third in absolute terms.

The variables were estimated by processing the information contained in the "report on company governance and ownership" published annually by Italian corporations and available on the Italian Stock Exchange website (Borsa Italiana). These reports contain information concerning the level of compliance of Italian companies with the Self-Governing Act promoted by the Italian Stock Exchange. Art. 123-bis of the TUF (Finance Act), in force since 2009, requires that companies issuing shares traded in regulated markets draw up an annual report on corporate governance and ownership which, along with other information, includes guidance on *"the adherence to a code of conduct concerning corporate governance promoted by a company managing regulated markets or a trade association, motivating the reasons for any non-compliance with one or more provisions, as well as the corporate*

governance practices effectively applied by the company beyond all legislative or regulatory requirements".

3.2 Measuring operating performance and firm risk

In this paper, operating performance refers to the number of meetings held annually by the BoD (Gul et al., 2008; Ararat et al., 2010; Carter et al., 2003; Adams and Ferreira, 2004; Greco et al., 2011; Chapple et al., 2012) and the audit committee (Greco et al., 2011; Chapple et al., 2012). This variables represent a new element compared to existing literature on board diversity.

Operating performance was estimated by processing the information contained in the "report on company governance and ownership" published by the listed companies included in the sample. The number of meetings is usually consider as a proxy for the level of monitoring activity and, for this reason, also as a proxy of boards and committees' quality (Vafeas, 1999; Adams and Ferreira, 2004; Adams and Ferreira, 2009; Sharma et al., 2009; Bianco et al., 2011; Chapple et al., 2012). Greco et al. (2011) associate with an increased number of meetings a better quality of boards and committees.

Moreover, the firm systematic risk was estimated by beta. It expresses the risk of the individual firm compared to the risk of the market (Fama and MacBeth, 1973). Beta was calculated as the ratio between the covariance of firm returns and market portfolio returns and the variance of the latter. In this study, the betas of the listed companies included in the sample were calculated through an OLS regression analysis of weekly stock returns against NYSE composite returns using a time horizon of 5 years or, when not possible, a time period of between 2 to 5 years. Therefore, when the data available covered less than 2 years, the beta was not calculated because it was deemed to be insignificant. The data source is the Datastream database.

3.3 Control variables

We selected some control variables which, in line with previous literature, and in addition to board diversity, may contribute to explain operating performance and systematic risk.

In terms of number of meetings held annually by the BoD, the control variables considered included the presence of women on BoD (Adams and Ferreira, 2004), the inclusion in the "star" market³⁶, the business sector, company size, proxied by the natural logarithm of stock market capitalisation (Vafeas, 1999), firm global risk (measured by the standard deviation of stocks), the presence of the lead

³⁶ Only companies that have high requirements in terms of corporate governance can access the "star" segment.

independent director (a figure introduced by the Self-Governing Act as a guarantor of the correct distribution of power within the board, in particular concerning the accumulation of roles held by the Chairman and CEO), company profitability (Adams and Ferreira, 2004) proxied by the return on equity ratio, the average attendance of the BoD, board size, the average number of positions held by the members of the board and the presence of independent men on BoD.

As regards the number of meetings held annually by the audit committee, this was explained, together with board diversity, by the following control variables: the presence of women (total and independent) in the BoD, the inclusion in the "star" market, the business sector, the presence of the lead independent director, company size and the number of meetings held annually by the board of directors.

Finally, the following control variables concerning systematic risk were considered: the

inclusion in the "star" market, the presence of women in the BoD, the number of women in the audit committee, the company size (Berk, 1995; Botosan and Plumlee, 2002), the global risk, the payout ratio, the price earning, the price to book value, the return on equity ratio, the return on asset ratio and leverage (calculated as a ratio between the debt book value and equity).

The values concerning the control variables were extrapolated from the "reports on company governance and ownership" and from the Bloomberg database.

3.4 Descriptive statistics

The descriptive statistics of the variables used in the analyses are shown in Table 2. It shows the average, median, minimum value, maximum value, standard deviation, asymmetry and kurtosis of the variables described in Table 1.

Table 1. Description of the variables

Name	Description
STAR	inclusion in the "star" market: dummy variable which equals 1 for companies in the star market, 0 in other markets
SECT	business sector: dummy variable which equals 1 for companies in the financial sector, 0 in other sectors
W_AUDIT	the number of women in the audit committee
W_BOD	the percentage of women in the BoD
W_IND	the percentage of independent women in the BoD
M_IND	the percentage of independent men in the BoD
FOR_BOD	the percentage of foreign directors on the BoD
MEET_BOD	the number of meetings held annually by the BoD
MEET_AUDIT	the number of annual meetings held by the audit committee
ATT	the average attendance of the BoD
LEAD	the presence of a lead independent director: a dummy variable which has value 1 if there is a lead independent director, 0 otherwise
POSIT	the average number of positions held by the members of the board
SIZE_BOD	board size (number of directors)
BETA	systematic risk
SIZE	company size, proxied by the natural logarithm of stock market capitalisation
GL_RISK	global risk, proxied by the standard deviation of stocks
ROE	return on equity
ROA	return on assets
PAYOUT	payout ratio
PE	price earning
PTBV	price to book value
LEV	leverage, calculated as a ratio between the debt book value and equity

Table 2. Descriptive statistics

Variable	Mean	Median	Minimum	Maximum	Dev. Std.	Asymmetry	Kurtosis
STAR	0.289	0.000	0.000	1.000	0.454	0.930	-1.135
SECT	0.225	0.000	0.000	1.000	0.418	1.318	-0.263
W_AUDIT	0.079	0.000	0.000	1.000	0.271	3.111	7.679
W_BOD	0.053	0.000	0.000	0.571	0.080	2.125	6.712
W_IND	0.010	0.000	0.000	0.500	0.036	5.573	49.335
M_IND	0.365	0.333	0.000	1.000	0.189	1.197	6.491
FOR_BOD	0.044	0.000	0.000	4.000	0.162	17.374	411.198
MEET_BOD	9.932	9.000	1.000	41.000	4.712	2.063	7.228
MEET_AUDIT	5.622	5.000	0.000	53.000	4.261	4.742	41.278
ATT	0.883	0.894	0.286	1.000	0.079	-1.439	5.012
LEAD	0.295	0.000	0.000	1.000	0.456	0.899	-1.193
POSIT	3.853	3.600	0.000	25.570	2.437	1.530	8.163
SIZE_BOD	10.767	10.000	1.000	31.000	4.180	1.121	1.867
BETA	1.104	1.054	0.049	3.258	0.465	0.666	1.531
SIZE	6.165	5.918	3.463	11.520	1.666	0.818	0.407
GL_RISK	0.315	0.290	0.107	1.538	0.139	2.064	10.521
ROE	0.069	0.088	-4.344	1.167	0.257	-7.304	109.003
ROA	0.074	0.059	-1.000	1.441	0.157	1.617	19.664
PAYOUT	1.358	0.270	0.000	281.143	15.233	18.093	329.315
PE	30.479	15.601	1.509	200.000	44.465	2.922	7.774
PTBV	2.712	1.964	0.393	20.000	2.765	3.755	17.736
LEV	1.698	0.908	0.000	24.131	2.526	3.878	21.188

Prior to carrying out the empirical analyses, the existing correlation between the independent and control variables used in the survey was checked. The analysis of such correlations seems to support the hypothesis that each independent variable has its own specific information value in its ability to explain the cost of equity (Table 3).

3.5 Methodology

As regards the methodology, three different regressions were estimated on the panel data. The first Poisson regression aims to investigate the relationship between board diversity and the number of meetings held by the BoD (1):

$$\begin{aligned} \text{MEET_BOD}_{i,t} = & \alpha_1 + \beta_1 * \text{STAR}_{i,t} + \beta_2 * \text{SECT}_{i,t} + \beta_3 * \text{W_BOD}_{i,t} + \beta_4 * \text{W_IND}_{i,t} + \\ & + \beta_5 * \text{FOR_BOD}_{i,t} + \beta_6 * \text{POSIT}_{i,t} + \beta_7 * \text{SIZE}_{i,t} + \beta_8 * \text{GL_RISK}_{i,t} + \beta_9 * \text{LEAD}_{i,t} + \beta_{10} * \text{ROE}_{i,t} + (1) \\ & + \beta_{11} * \text{ATT}_{i,t} + \beta_{12} * \text{SIZE_BOD}_{i,t} + \beta_{13} * \text{M_IND}_{i,t} + \varepsilon \end{aligned}$$

Where α_1 is a constant, i the firm and t the year 2006, 2007, 2008 and 2009. The second Poisson regression, on the other hand, aims to investigate the

relationship between board diversity and the number of meetings held by the audit committee (2):

$$\begin{aligned} \text{MEET_AUDIT}_{i,t} = & \alpha_1 + \beta_1 * \text{STAR}_{i,t} + \beta_2 * \text{SECT}_{i,t} + \beta_3 * \text{W_AUDIT}_{i,t} + \beta_4 * \text{W_BOD}_{i,t} + \\ & + \beta_5 * \text{W_IND}_{i,t} + \beta_6 * \text{FOR_BOD}_{i,t} + \beta_7 * \text{SIZE}_{i,t} + \beta_8 * \text{LEAD}_{i,t} + \beta_9 * \text{MEET_BOD}_{i,t} + \varepsilon \end{aligned} \quad (2)$$

Table 3. Correlation table

	STAR	SECT	W_AUDIT	BOARD_SIZE ^E	W_BOD	MEET_BOD	ATT	POSIT	W_IND	M_IND	MEET_AUDIT ^T	SIZE	GL_RISK	BETA	PAYOUT	PE	PTBV	ROE	ROA	LEV	LEAD	FOR_BOD	
STAR	1,00																						
SECT	-0,20	1,00																					
W_AUDIT	-0,05	-0,13	1,00																				
BOARD_SIZE	-0,19	0,34	-0,01	1,00																			
W_BOD	0,02	-0,10	0,34	-0,10	1,00																		
MEET_BOD	-0,07	0,25	-0,01	0,18	-0,13	1,00																	
ATT	0,08	-0,07	-0,08	-0,21	-0,01	-0,02	1,00																
POSIT	-0,14	0,17	0,03	0,14	-0,03	-0,06	-0,07	1,00															
W_IND	-0,08	-0,04	0,47	0,00	0,36	0,03	-0,06	-0,04	1,00														
M_IND	-0,07	0,05	-0,07	0,14	-0,12	0,09	-0,02	-0,05	0,05	1,00													
MEET_AUDIT	-0,14	0,21	0,02	0,38	-0,07	0,37	0,04	0,01	0,01	0,17	1,00												
SIZE	-0,23	0,24	-0,01	0,44	-0,15	0,13	-0,03	0,14	0,09	0,29	0,37	1,00											
GL_RISK	0,04	-0,12	0,02	-0,13	-0,01	0,09	-0,01	-0,09	-0,01	-0,05	-0,10	-0,32	1,00										
BETA	-0,01	0,13	0,02	0,18	-0,06	0,05	-0,05	-0,03	0,05	0,09	0,07	0,31	0,34	1,00									
PAYOUT	0,03	-0,04	-0,02	-0,06	0,12	-0,07	0,06	-0,07	-0,02	-0,03	-0,05	-0,04	-0,03	-0,05	1,00								
PE	0,04	-0,10	0,00	-0,10	-0,01	-0,07	0,02	-0,06	0,02	-0,13	-0,14	-0,25	0,17	-0,01	0,24	1,00							
PTBV	0,00	-0,08	0,02	-0,10	-0,04	0,00	0,01	-0,04	-0,02	-0,05	-0,10	-0,01	0,19	0,09	0,01	0,19	1,00						
ROE	0,04	0,05	0,00	-0,01	0,03	-0,09	0,01	0,05	-0,03	0,05	-0,01	0,29	-0,17	0,03	-0,08	-0,38	-0,06	1,00					
ROA	0,09	-0,10	0,00	-0,05	0,07	-0,17	0,09	-0,01	-0,05	0,01	-0,06	0,16	-0,10	0,00	0,34	-0,14	0,12	0,47	1,00				
LEV	-0,11	0,36	0,00	0,18	-0,07	0,28	-0,03	0,03	0,01	0,10	0,17	0,19	-0,02	0,13	-0,03	-0,10	0,14	-0,31	-0,18	1,00			
LEAD	0,26	-0,16	0,00	-0,09	-0,03	-0,15	0,07	0,06	-0,04	0,01	-0,14	-0,04	0,09	0,05	0,02	0,00	0,04	0,02	0,13	-0,08	1,00		
FOR_BOD	-0,06	0,00	0,08	0,02	-0,06	-0,04	-0,02	0,05	0,04	0,29	0,04	0,24	-0,01	0,04	-0,02	-0,02	0,02	0,02	-0,01	0,00	-0,03	1,00	

The significance of the coefficients was calculated to 95%.

Finally, the third OLS regression aims to investigate the relationship between board diversity and cost of equity capital (3):

$$\begin{aligned} \text{BETA}_{i,t} = & \alpha_1 + \beta_1 * \text{STAR}_{i,t} + \beta_2 * \text{W_BOD}_{i,t} + \beta_3 * \text{W_AUDIT}_{i,t} + \beta_4 * \text{W_IND}_{i,t} + \\ & + \beta_5 * \text{FOR_BOD}_{i,t} + \beta_6 * \text{SIZE}_{i,t} + \beta_7 * \text{GL_RISK}_{i,t} + \beta_8 * \text{PAYOUT}_{i,t} + \beta_9 * \text{PE}_{i,t} + \beta_{10} \\ & * \text{PBV}_{i,t} + \beta_{11} * \text{ROE}_{i,t} + \beta_{12} * \text{ROA}_{i,t} + \beta_{13} * \text{LEV}_{i,t} + \varepsilon \end{aligned} \quad (3)$$

4. Results

The first analysis (equation (1)), carried out with the aim of assessing the impact of board diversity on the

number of meetings held annually by the BoD, produced the results shown in Table 4.

Table 4. Board diversity and board meetings

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>P-value</i>
Const	1.549***	0.199	7.802	<0.000
STAR	0.072**	0.035	2.058	0.040
SECT	0.197***	0.0354	5.570	<0.000
W_BOD	-0.960***	0.249	-3.852	0.000
W_IND	1.591***	0.462	3.440	0.000
FOR_BOD	-0.684***	0.173	-3.965	0.000
SIZE	0.031***	0.011	2.834	0.005
GL_RISK	0.335***	0.104	3.213	0.001
LEAD	-0.085***	0.033	-2.581	0.010
ROE	-0.220***	0.082	-2.668	0.008
ATT	0.233	0.196	1.189	0.234
SIZE_BOD	0.015***	0.004	3.827	0.000
POSIT	-0.011	0.007	-1.643	0.100
M_IND	0.304***	0.079	3.831	0.000
Adjusted R-squared	0.474			

Table 4 presents the results of a Poisson regression on the panel data which investigates the relationship between board diversity and the number of meetings held annually by the BoD. The sample consists of 854 observations. One, two or three asterisks represent the significance of the coefficients, meaning the refusal of the hypothesis of the non-significance of the coefficients, with a level of probability of 10%, 5% and 1% respectively.

Equation (1) presents a correct r^2 of 0.47 and, therefore, the model shows a good ability to explain the variance of the dependent variable. As regards the presence of independent women on the boards, this variable presents a direct and significant relationship with the number of meetings held annually by the BoD: in other words, the presence of independent female directors on BoD leads to more BoD meetings. We can therefore state that the hypothesis 1 is confirmed in the Italian market, as suggested by Ararat et al. with regard to the Turkish market (2010).

On the other hand, as far as the presence of foreign nationals on the boards is concerned, this variable highlights an inverse link with the statistically significant dependent variable. This means that the presence of foreign directors on BoD doesn't lead to more BoD meetings. For this reason, hypothesis 2 is rejected.

All the control variables, with the exception of the average attendance of the BoD and the average number of positions held by the members of the board, show a significant relationship with the number of meeting held annually by the BoD. In particular, the boards which meet more often are included in the "star" segment: not surprisingly, they respect high requirements in terms of corporate governance. Moreover, the boards which meet more often seem to be those of firms in the financial sector and larger sized companies, as shown by de Cabo et al. (2009) and Carretta et al. (2005). We also find a statistically significant relationship between BoD meetings and global risk, board size and presence of men independent directors. That means that not only the presence of independent female directors on BoD, but also the presence of men independent ones, leads to more BoD meetings.

On the contrary, the boards of directors that meet less frequently are those with a higher presence of women (executive and non-executive), as suggested by Bianco et al. (2011), the higher profitability and the presence of the lead independent director.

The second analysis (equation (2)), carried out with the aim of assessing the impact of board diversity on the number of meetings held annually by the audit committee, produced the results shown in Table 5.

Table 5. Board diversity and audit committee meetings

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>P-value</i>
Const	0.493***	0.088	5.610	<0.000
STAR	-0.016	0.045	-0.363	0.717
SECT	0.053	0.045	1.177	0.239
W_AUDIT	0.245***	0.078	3.128	0.002
W_BOD	-0.603*	0.325	-1.855	0.064
W_IND	-1.046	0.743	-1.408	0.159
FOR_BOD	-0.100	0.204	-0.491	0.623
SIZE	0.116***	0.011	10.581	<0.000
LEAD	-0.064	0.043	-1.515	0.130
MEET_BOD	0.045***	0.004	12.695	<0.000
Adjusted R-squared	0.379			

Table 5 presents the results of a regression on the panel data which investigates the relationship between board diversity and the number of meetings held annually by the board of directors. The sample consists of 854 observations. One, two or three asterisks represent the significance of the coefficients, meaning the refusal of the hypothesis of the non-significance of the coefficients, with a level of probability of 10%, 5% and 1% respectively.

Equation (2) presents a correct r^2 of 0.38 and, therefore, the model shows the good ability to explain the variance of the dependent variable. As regards the presence of women on the audit committees, this variable presents a direct and significant relationship with the number of meetings held annually by the audit committee: that means that the presence of women in audit committee leads to more audit committee meetings. We can therefore state that the hypothesis 3 is confirmed in the Italian market, as suggested by Adams and Ferreira with regard to the US market (2004).

On the other hand, as far as the presence of foreign nationals on the boards is concerned, this variable highlights no link with the dependent variable. This means that hypothesis 4 is rejected.

As far as the control variables are concerned, company size and number of meetings held annually by the BoD show a significant relationship with the number of meetings held annually by the audit committee. In particular, the control committees which meet more frequently seem to be those of larger sized companies in which the board also meets more frequently, as suggested by Assonime (2010) and Carretta et al. (2005).

The third analysis (equation (3)), carried out with the aim of assessing the impact of board diversity on systematic risk, produced the results shown in Table 6.

Table 6. Board diversity and systematic risk

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>P-value</i>
Const	-0.592***	0.129	-4.591	<0.000
STAR	0.0890*	0.047	1.879	0.061
W_BOD	0.195	0.330	0.592	0.554
W_AUDIT	-0.114	0.086	-1.323	0.187
W_IND	0.535	0.760	0.704	0.482
FOR_BOD	-0.383*	0.222	-1.728	0.085
SIZE	0.134***	0.014	9.307	<0.000

GL_RISK	2.499***	0.203	12.323	<0.000
PAYOUT	-0.002	0.001	-1.484	0.139
PE	0.000	0.001	0.711	0.478
PBV	-0.012	0.015	-0.807	0.420
ROE	0.480	0.311	1.546	0.123
ROA	0.428	0.274	1.561	0.120
LEV	0.039***	0.011	3.649	0.000
Adjusted R-squared	0.405			

Table 5 presents the results of a regression on the panel data which investigates the relationship between board diversity and the number of meetings held annually by the board of directors. The sample consists of 854 observations. One, two or three asterisks represent the significance of the coefficients, meaning the refusal of the hypothesis of the non-significance of the coefficients, with a level of probability of 10%, 5% and 1% respectively.

These results show no statistically significant relationship between the presence of women on the board and firm systematic risk. This evidence is in contrast with several studies that identify a negative relationship between number of women directors and firm risk (Gulamhussen and Forte Santa, 2010; Minguez-Vera and Maritin, 2010). This result can be explained by the low presence of females in top positions in Italian firms. In light of these results, hypothesis 5 is rejected.

The results in Table 6 show that the percentage of foreign directors on the board has a significant negative relationship with beta. It means that companies with a high presence of foreign directors show lower systematic risk. For this reason, hypothesis 6 is accepted.

The adjusted R-squared for the regression is 0.40, which indicates that the equation is reliable. Some of the control variables (firm size, standard deviation and leverage) show a statistically significant link with beta, as in Dobbing and Jung (2011).

5. Robustness checks

We performed a number of checks to assess the robustness of our empirical results. More specifically, some variations of the equations (1), (2) and (3) were estimated in order to assess the robustness of the results concerning the relationship between board diversity and operating performance and board diversity and systematic risk.

First, we use an OLS regression rather than a Poisson regression in order to estimate equations (1) and (2) without finding any relevant difference in our results. More specifically, the significance of the coefficients has been confirmed, although the OLS model shows a lower goodness of fit (adjusted r-squared) than the Poisson model.

Second, in equation (3) the following three additional performance variables have been tested in place of systematic risk (beta): (i) the global risk (GL_RISK), measured by the standard deviation of stocks, (ii) ROE, the return on equity ratio, and (iii) ROA, the return on asset ratio.

Our results confirm previous evidences. More specifically, gender diversity doesn't contribute to explain neither ROE and ROA nor the global risk. Moreover, the robustness check doesn't identify any statistically significant relationship between nationality diversity and accounting performance variables and global risk. Also this result seems to substantially confirm the previous findings, since the negative link between beta and diversity was weakly significant (significance level of 10%).

Third, we tried to estimate equations (1), (2) and (3) aggregating panel data by stacked cross section rather than by stacked time series. Once again, our main results hold.

6. Conclusions

The subject of board diversity is a central issue to the debate over quality standards of corporate governance and in our country it becomes even more important after the publication of Italian legislation on "gender quotas". The impact of diversity on the results achieved by the board is still, however, not fully clear.

In our paper we have contributed to investigate the relationship between gender and nationality diversity, and some board operating performance profiles that are relevant to the effective operation of the monitoring function. The results show that diversity, in terms of independent women and foreign members, affects the operating performance of the board. A female presence determines an increase in the frequency of the meetings of both the board of directors and the audit committee; the presence of foreign nationals, on the other hand, has the opposite effect.

In a context in which the management of conflicts of interest among different stakeholders of a company is at the centre of legislative and regulatory interventions, and therefore also the monitoring function carried out by the BoD takes on crucial importance, the increase in the percentage of women in such bodies should therefore represent not only a legal constraint, but a primary objective in the process of appointing and selecting the composition of boards by businesses.

No relationship is seen at present between gender diversity and firm systematic risk. It may be due, in absolute terms, to the limited incidence of the investigated profiles in the composition of the boards of Italian companies, and therefore the market's difficulty in perceiving an element of "substantial difference". But most likely also in this case, the increase in gender shares, passing from the positive intermediate results, could in future represent a further tool for quality assurance in governance processes and thus in company reputation. It will be interesting to reanalyze the topic when the legislation on "gender quotas" in Italy will be in full force and the number of female directors will be significant compared to now.

The negative relationship between nationality diversity and systematic risk, that implies that firms with a higher number of foreign directors on BoD are more risk taker than others, highlights the relevance of board heterogeneity as a strategic driver. Managers that face more complex goal mixes, expressed by international shareholders having own representative on the board, can be led to pursue more ambitious goals that can imply a higher risk level.

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