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Towards higher sustainability: If you want something done, ask a chairwoman

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ABSTRACT

The debates on sustainability and ESG agenda increasingly highlight how important human capital is in defining the future for businesses. This study aims at empirically investigating the impact of having a woman chairing the board and/or one of the board committees on ESG performance. With the adoption of a sample including all FTSE-MIB Italian companies from 2007 to 2018, our findings document that chairwoman enhances ESG performance. However, we find that the critical mass of women on boards negatively affect such relationship. This puzzling result may suggest a change in the board dynamics of companies with chairwomen, once a critical mass is reached.

1. Introduction

The debates on ESG agenda are associated with reheated discussions in the literature on how important human capital of female directors is in defining the future of businesses, especially with regard to improving sustainability (Nguyen et al., 2020). Gender equality represents the 5th Sustainable Development Goal (SDG), whose fulfilling will complete the implementation of a complex European agenda in line with the memorable Margaret Thatcher's quote "If you want something said, ask a man; if you want something done, ask a woman". Prior studies on the relationship between women on boards and sustainability are inconclusive and confound sustainability and ESG agenda with CSR. Previous analyses (Byron and Post, 2016; Dang et al., 2021; Rao and Tilt, 2016; Glass et al., 2016) document a positive relationship between women on boards and Corporate Social Performance (CSP). Other studies find a negative relationship (Manita et al., 2018). CSP measures adopted in previous research (e.g., Post and Byron, 2015) do not fully capture the entire set of sustainable factors imposed by regulators and market practices. These factors should reflect how well a company manages environmental, social and governance risks and opportunities and they are measured by ESG scores. Differently from most previous studies (Bruna et al., 2022; Nerantzidis et al., 2022), we use ESG scores to measure sustainability instead of CSP. As stated by Wood (1991) CSP can be defined as "a business organization's configuration of principles of social responsibility, processes of social responsiveness, and policies, programs, and observable outcomes as they relate to the firm's societal relationships" (Wood, 1991:693). As such, CSP focuses on the social performance outcome of a firm's undertaking Corporate Social Responsible activities rather than managing ESG issues.

Female representation on boards has increased considerably due to implementation of board quota laws introduced in most of the EU countries (Hoobler et al., 2018; Seierstad et al., 2017), in line with the "Women on Boards" European Directive approved in 2022.

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Italy introduced gender board quota in 2011, requiring listed companies to appoint at least 33% of women on their boards. Starting from a very low female board representation, in 2022 Italian public companies reached one of the highest proportions (43%) of women on boards in Europe (Consob, 2023; EWOB, 2021). The subsequent increase in the number of women on boards helped women breaking the “glass ceiling”, with the potential to reach more powerful positions (i.e., chair of a board or a board committee). Such increased power of women on boards may have significantly affected their ability to influence the decision-making process. Despite the improvements in female representation, spurred by gender-quota rules, women very rarely reach the most powerful positions on boards (EWOB, 2021).

This study aims at investigating the effect of having a woman as chair on ESG performance. No previous studies have empirically investigated such relationship. We aim at contributing filling this gap by focusing on the context of Italy. We also examine whether the critical mass of women on boards represents a moderating factor of the relationship between chairwomen and ESG.

Adopting a sample of FTSE-MIB Italian listed companies from 2007 to 2018, our findings show that companies with a woman chairing the board or/and a committee perform better in terms of ESG. Our findings also show some puzzling results in relation to a negative moderating effect played by the critical mass of women on boards on the relationship between having a chairwoman and ESG performance. Surprisingly, boards with a chairwoman and the critical mass of female directors experience lower ESG score.

Our study contributes to the literature in three ways. First, our research adds new evidence to the literature on women on boards and ESG, as a more precise measure of sustainability. Second, we advance the discussion about the importance of gender diversity on boards, going beyond the numerical female representation of boards (Bruna et al., 2022). Third, we enhance the understanding of the effect of chairwoman and its influence on ESG agenda.

2. Literature review and hypotheses development

Initiatives changing current business models towards more sustainable ones represent an important goal of board of directors. Recent studies have found that a greater gender board diversity positively affects sustainability (e.g., Campopiano et al., 2023; Mehmood et al., 2023; Galletta et al., 2022; Dang et al., 2021).

Previous empirical studies document that the positive benefits of having greater gender diversity on boards are obtained when women reach a critical level of, at least, three (De Masi et al., 2021b; Bruna et al., 2022; Dobiija et al., 2022; Nerantzidis et al., 2022). When women reach the critical mass of three, they gain a higher influence and become capable of significantly impacting board decisions. Their different knowledge, experience and values are more likely to be used to satisfy stakeholders' needs with regard to their ESG agenda (Bruna et al., 2022; De Masi et al., 2021a)

Building on social capital theory (Bourdieu, 1986) we advance the understanding on how female chair characteristics can influence ESG performance. As highlighted by Bourdieu (1986), the social capital is represented by the networks of connections among people living and working in a particular context, which in certain conditions can be institutionalized by a formal title. The value of social capital depends on the type and the structure of social relationships (friend, family, work), as well as the role and position held by a person in such networks, which imply a sharing of norms, values, beliefs, and abilities.

When a woman starts assuming more powerful positions given by a formal title, as the chair of a board or of a board committee, her ability to influence ESG performance is more pronounced. Chairwomen may emphasize ESG subjects while preparing board agenda (Bezemer et al., 2012), as well as while leading board meetings, setting tone for discussions, establishing board routines and development board programs (Bezemer et al., 2018). As a chair, she acts as a primary communication channel between the CEO and the rest of the board (Withers and Fitza, 2017).

Recent evidence demonstrates that chairwomen are more likely to cooperate, as well as prioritize relationships, group's goals, and reputation over their personal gains (Tuliao and Chen, 2017). A title of chair gives a greater power, and more powerful people tend to be more vocal (Cleveland et al., 2000). When women on boards have more power, they more easily speak out and voice their opinions (Słomka-Golebiowska et al., 2022). This, in turn, brings more information and wider perspectives, as well as more alternative solutions to consider. This is especially important for complex and costly initiatives enhancing sustainability, where there is a higher probability of disagreements between board members. The potential to disagree with conventional thinking increases when women have more power to voice their views (De Masi et al., 2021a). Based on the above discussion, we formulate the following hypotheses:

H 1. *Having a woman chairing the board and/or one of the board committees is positively related to ESG firm performance.*

H 2. *The positive relationship between chairing the board and/or one of the board committees by a woman and ESG firm performance is positively moderated by the critical mass of women on boards.*

3. Method, sample and variables

Our sample includes FTSE-MIB companies (37) over the 2007–2018 period. We collect ESG information from Refinitiv-Eikon, as well as the remaining data, such as board variables and other financial data. Data regarding the position of women as board chair (or chair of board committees) was hand-collected by using the methodology of content-analysis with an interpretative approach (Beck et al., 2010) applied to the annual corporate governance reports published by listed companies every year.

To empirically test our hypotheses, we estimate the following regression model:

$$ESG_{j,t} = \alpha_0 + \beta_1 CHAIRWOMAN_{j,t} + \beta_2 CM_{j,t} + \beta_2 CM * CHAIRWOMAN_{j,t} + \beta_3 [Control]_{jt} + \varepsilon_{j,t}$$

Where: j denotes the firm, t denotes the fiscal year, and $\varepsilon_{j,t}$ is the residual term. We also employ panel data, which controls for omitted variable bias and unobservable heterogeneity (Verbeek, 2008). Considering the results of the Hausman specification test, fixed effects method is used as the estimation method.

Our dependent variable is ESG, provided by Refinitiv-Eikon, which is a global score which includes three components: Environment, Social and Governance. Our independent variables are the following: CHAIRWOMAN, which takes the value 1 when a woman chairs the board, or one of the board committees, and 0 otherwise; CM, which is a dummy variable representing the critical mass of women on boards and it is equal to 1, if a board has at least three women, 0 otherwise. To test the impact of board dynamics triggered by having a woman in a chair position and the critical mass of women on ESG performance, we include the interaction term between CHAIRWOMAN and CM. In Table 1, we provide an overview of the variables and their definitions.

4. Results

Table 2 presents the descriptive statistics. ESG score goes from zero to 100 (Refinitiv). A high measure indicates a better capacity of the company to follow the environmental, social and governance best practices. In our sample (Table 2) the ESG score is 57.03, with the maximum value of 94.05 and a minimum value of 3.25. Table 2 also shows that in 40% of the company-year-observations, boards have at least three women and in 18% of the year-observations, boards have a woman that chairs the board and/or one of the board committees. Pearson's correlation matrix (Table 3) shows that multicollinearity is not an issue in our analyses. The highest correlation is between the ESG score and its three sub-scores. This is not a problem for our study since these sub-scores are not included in the same statistical model.

Table 4 reports empirical results about the relationship between having a woman chairing the board/and a board committee and ESG firm performance. Results show that chairwoman increases ESG score by 3.14, which is 5.58% (3.18/57.03) higher than the ESG average (Table 4, column 1). Hypothesis 1 is supported. Our finding document that with the title of chairperson, women become more powerful and tend to be more vocal. Chairwomen are more able to influence the board decision-making process, enhancing the tendency of companies to care about social and environmental issues. We also test the relationship between having a woman chairing the board and/or one of the board committees and three ESG sub-scores (Table 4, column 3–4–5). Results show a positive impact of chairwomen on Governance. More specifically, when a woman chairs the board (and/or one of the board committees), the Governance score increases by 5.56, which is 10.28% (5.86/57.03) higher than the ESG average.

Furthermore, we test the effect of the interaction term between chairwoman and critical mass of women on ESG performance. The coefficient of this interaction term indicates the difference in ESG score between boards with critical mass of at least three women, and boards with less than three women and one woman chairing the board or its committees. Contrary to our expectations, in our findings the coefficient of such interaction term is negative, showing that boards with a critical mass of woman and a woman chairing the board and/or one of the committees experience a decrease in ESG performance (Table 4, column 2). This relationship remains negative and statistically significant also in the case of the Environmental sub-score and the Social sub-score (Table 4, column 3–4). Hypothesis 2 is not supported.

In order to control for potential endogeneity problems, we also use two-stage least square (2SLS) approach to address the possible endogeneity that may affect our CM variable. Following the previous studies in corporate governance (De Masi et al., 2022; Farag and Mallin 2016; Kinateder et al., 2021) we use an instrumental variable (represented by the "gender quota law"), which assumes that value 0 in the years before the introduction of the quota law, and the value 1 after the introduction of the gender quota law.¹ This variable is an ideal instrument for our analyses because it has no relationship with the dependent variables (ESG), but has significant relationship with the independent variable ("CM"), since after the introduction of the quota, most of boards reached the critical mass of women. The results reported in Table 5 (column 1) confirm that the relationship between the gender quota law (instrument) and the critical mass of women (CM) is positive and statistically significant. The endogeneity test shows that our results are not affected by endogeneity problems: The F-test value (127.45) of the first-stage regression is significant at 1%. The value of Cragg-Donald Wald F-statistics is higher than the Stock-Yogo values (max. 16.38 at 10%), which indicates that the instrument is not weak. Results of the 2SLS are reported from column (2) to column (5). They show that relationship between the critical mass of women on boards and the environmental performance (and its sub-scores) are positive and statistically significant. To test robustness of our main analyses we implemented a number of different specifications, such as rerunning our main regressions with lagged variables, as well as considering more control variables. Also, to better assess potential sample selection biases we have adopted the Heckman model. Our results remain robust.²

5. Conclusion

Differently from the existing literature examining the women on boards and ESG performance, we empirically investigate this relationship by looking at the effect of having women chairing a board (or a committee) on ESG performance. Our findings show that a

¹ Before the introduction of quota law, no boards have a chairwoman. This is why the interaction term is not included in the regression.

² Regarding the Heckman model, we have implemented the two-steps Heckman selection model, by estimating in the first stage the probability of having a woman on boards, and in the second stage the related outcome (ESG score). As showed by previous studies, relevant variables affecting the probability of having women on boards are the quota law enactment and the industries. For brevity reason, these tests are not included in the paper. They are available upon requests.

Table 1
Variables description.

Variable	Definition
<i>ESG score</i>	It is the ESG score, provided by Refinitiv, Thomson-Reuters. The score is customized for different industrial sectors. In this way, each company is evaluated only in terms of the data that is relevant for its industrial sector. It is a global score which includes three sub-scores: the environmental score, the social score and the governance score.
<i>Env score</i>	It measures the company's capacity to reduce the use of materials, energy or water, the environmental and to find more eco-efficient solutions by improving supply chain managements and by creating new market opportunities through new environmental technologies and processes or eco-designed products.
<i>Social score</i>	It measures how well the company treats its employees, in terms of diversity and equal opportunities, job satisfaction, healthy and safe workplace, and respect of the fundamental human rights and how much the company protects public health and respects business ethics
<i>Gov score</i>	It measures the company's commitment towards following best practice corporate governance principles, and the company's practices to communicate that it integrates the economic (financial), social and environmental dimensions into its day-to-day decision-making processes
<i>Chairwoman</i>	It is a dummy equal to 1 if a woman chairs the board or/and one of the board committees. 0 otherwise
<i>CM</i>	It is a dummy variable that assumes the value 1 if a board has at least 3 women; 0 otherwise. It measures the critical mass.
<i>Chairwoman* CM</i>	The interaction between the variable CM and the variable Chairwoman
<i>Indep directors</i>	The percentage of independent directors reported by the company.
<i>CEO duality</i>	It is a dummy equal to 1 if the CEO is also Chairman. 0 otherwise
<i>Firm size</i>	The logarithm of the total assets as reported by the financial annual report by the company
<i>ROE</i>	Return on Equity calculated as the ratio between net income over shareholders' equity
<i>LogCAPEX- win</i>	The logarithmic and winsorized transformation of CAPEX (capital expenditure divided by the average shares outstanding).
<i>LogLEV_win</i>	The logarithmic and winsorized transformation of the ratio between total debt and total equity

Table 2
Descriptive statistics.

Variable	Obs	Mean	Std. Dev.	Min	Max
<i>ESG score</i>	345	57.03	24.39	3.25	94.05
<i>Env score</i>	345	57.45	31.15	0.00	98.93
<i>Social score</i>	345	61.16	25.43	1.88	98.47
<i>Gov score</i>	345	52.46	23.73	3.12	98.30
<i>Critical mass</i>	341	0.39	0.49	0.00	1.00
<i>Chairwoman</i>	315	0.18	0.38	0.00	1.00
<i>Indep directors</i>	327	54.33	21.75	0	100
<i>CEO duality</i>	352	0.20	0.40	0.00	1.00
<i>Board size</i>	346	14.80	5.93	3.00	38.00
<i>Firm size</i>	382	17.11	1.70	13.07	20.75
<i>ROE</i>	380	10.73	20.32	-50.05	265.95
<i>LogCAPEX_win</i>	381	12.41	1.79	9.50	15.40
<i>LogLEV_win</i>	384	4.99	0.93	3.56	6.37

woman chairing the board and/or one of its committees increases ESG performance. To be more influential and acquire recognition within the boardroom, as well as vis a vis management, women need to have a title that gives them legitimacy. Our results have substantial practical implications for investors, managers, and policymakers. Contrary to our expectations, we find a negative moderating effect of critical mass of women on boards on the relationship between chairing the board (or one of the board committees) by a woman and ESG performance.

This puzzling result may suggest that the board dynamics changes when a woman chairs a board of a company that has reached a critical mass of female directors. One explanation might be that powerful women do not want to be categorized according to their gender. For this reason, if the board is more gender diverse, chairwoman will be more likely to behave differently from the other women on the board. The second explanation might be that chairwoman makes the board more open to discussion (Kanadli et al., 2018). This creates the potential to disagree and to discuss diverse viewpoints. In this way, the board might become slower or more inert to comply with the ESG regulations and guidelines because of the time-consuming discussions on different views and the time needed to reach a final decision. These explanations might prove new avenues for further research and call for more research on the impact of gender diversity and ESG firm performance.

Declaration of Competing Interest

The authors did not receive support from any organization for the submitted work.

Data availability

The data that has been used is confidential.

Table 3

Correlation matrix.

	1. <i>ESG score</i>	2. <i>Env score</i>	3. <i>Social score</i>	4. <i>Gov score</i>	5. <i>Critical mass</i>	6. <i>Chairwoman</i>	7. <i>Indep directors</i>	8. <i>CEO duality</i>	9. <i>Board size</i>	10. <i>Firm size</i>	11. <i>ROE</i>	12. <i>Log CAPEX-win</i>	13. <i>LogLEV _win</i>
1.	- / -												
2.	0.90***	- / -											
3.	0.96***	0.82***											
4.	0.84***	0.65***	0.70***	- / -									
5.	0.02	0.08	0.05	-0.09*	- / -								
6.	0.12*	0.08	0.09	0.15***	0.27***	- / -							
7.	0.40***	0.41***	0.32***	0.40***	0.16***	0.17***	- / -						
8.	-0.08	-0.03	-0.07	-0.10**	0.00	-0.06	-0.14	- / -					
9.	-0.04	0.04	-0.06	-0.02	0.37**	-0.07	0.20***	0.06	- / -				
10.	0.34	0.42***	0.31***	0.30***	0.20***	0.20***	0.26***	-0.19***	0.38***	- / -			
11.	-0.10**	-0.09*	-0.11**	-0.11**	-0.01	-0.10*	-0.05	0.07	-0.15***	-0.29***	- / -		
12.	0.53***	0.47***	0.51***	0.42***	-0.20***	0.14***	0.20***	-0.03	-0.21***	0.40	-0.11**	- / -	
13.	0.01	0.10*	0.01	-0.02	0.21***	0.02	0.12	-0.22***	0.32***	0.61***	-0.05	0.03	- / -

Table 4
Main results.

	(1) ESG score	(2) ESG score	(3) Env score	(4) Social Score	(5) Gov Score
Chairwoman	3.18*** (2.65)	3.58*** (2.60)	0.90 (0.36)	2.96 (1.47)	5.86*** (2.62)
Critical mass	3.40*** (2.65)	3.88*** (2.97)	4.43 (1.41)	4.10 (1.60)	1.36 (0.33)
Chairwoman*Critical mass		-5.97* (-1.75)	-6.01* (-1.67)	-6.26* (0.1.81)	-3.57 (-1.01)
Board size	-0.14 (-0.85)	-0.19 (-1.11)	0.07 (0.24)	-0.24 (-0.77)	-0.21 (-0.75)
CEO duality	0.51 (0.31)	0.53 (0.33)	-2.52 (-0.73)	-0.26 (-0.07)	2.70 (0.98)
Indep directors	0.01 (0.49)	0.01 (0.32)	0.02 (0.30)	-0.01 (-0.08)	0.07 (1.53)
Firm size	6.72*** (3.80)	6.55*** (3.72)	6.44 (1.24)	11.15*** (2.83)	-1.89 (-0.47)
ROE	-0.00 (-0.02)	-0.00 (-0.11)	0.01 (0.23)	-0.03 (-0.52)	0.04 (1.00)
LogCAPEX_win	0.73 (0.97)	0.85 (1.13)	0.59 (0.45)	1.98 (1.58)	-0.72 (-0.63)
LogLEV_win	-5.30*** (-3.65)	-5.27*** (-3.64)	-5.30* (-1.76)	-7.87*** (-2.40)	-2.49 (1.18)
Constant	-39.90 (-1.34)	-37.74 (-1.28)	-37.30 (-0.46)	-111.83* (-1.87)	105.01 (1.68)*
N. Obs	265	265	265	265	265
R ² within	0.25	0.26	0.12	0.09	0.10
F- statistic	8.32***	7.87***	1.46	3.65***	3.23***

Note. Fixed effect regressions. T-statistics are in parentheses. The levels of significance are * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 5
Robustness check. IV.

	(1) CM	(2) ESG	(3) Env	(4) Soc	(5) Gov
	1st-stage Critical Mass	2st-stage ESG score	2st-stage Env score	2st-stage Social Score	2st-stage Score
Gender quota law	0.48*** (11.29)				
Critical mass-instrumented		16.16*** (6.87)	21.16*** (6.28)	18.76*** (6.17)	4.06 (1.50)
Board size	0.02*** (3.45)	-0.15 (-0.87)	0.17 (0.68)	-0.22 (-0.97)	-0.28 (-1.40)
Firm size	0.09 (1.16)	1.60 (0.72)	-1.87 (-0.58)	4.10 (1.41)	0.82 (0.32)
ROE	0.002*** (1.99)	-0.03 (-0.91)	-0.01 (0.17)	-0.04* (-0.95)	-0.03 (-0.62)
LogCAPEX-win	-0.03 (-0.97)	1.75** (2.16)	1.93* (1.66)	2.30** (2.19)	0.61 (0.65)
LogLEV-win	-0.00 (-0.03)	-1.91 (-1.21)	0.76 (0.34)	-3.37* (1.65)	-3.11* (-1.72)
N. Obs	330	330	330	330	330
Instruments validity tests for IV regression					
(i) F-test for excluded instrument in first stage					
Sanderson-Windmeijer F-test	127.45				
(ii) Under-identification test					
Anderson	94.73				
(iii) Weak identification test					
Cragg-Donald Wald F-statistic	136.72				
Stock-Yogo weak ID test					
10% max. IV size	16.38				
15% max. IV size	8.96				
20% max. IV size	6.66				
25% max. IV size	5.53				

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