The interplay between legal rules and accounting regulations on gender equality:

Evidence from Europe

Abstract

Purpose: The aim of this study is to assess the role of mandatory gender quota laws on firm female representation in managerial and Board positions. This is done by comparing companies that must comply with a minimum gender quota law at country level, with companies that do not. In addition, we also test for the compliance to the EU 2014/95 Directive about non-financial mandatory reporting and for firm financial performance.

Design/methodology/approach: Using a sub-sample of the EU STOXX 600 stock index, we build a dataset spanning over the period 2010-2020. Exploiting official country regulations, we distinguish between countries that mandate a minimum gender quota on the Board of listed companies, from countries that do not. Using four multivariate linear regression models we estimate the effect of mandatory gender quota on four main indicators: percentage of women among total employees, women in managerial positions, women as executives and percentage of women in the Board.

Findings: The empirical findings demonstrate that the presence of a mandatory gender quota law has a positive effect on the percentage of female in executive and Board positions. The introduction of the EU 2014/95 Directive contributes to the positive effect on female quota in managerial, executive and Board positions.

Social implications: We contribute to the recently growing stream of research about gender equality in the private sector.

Keywords: Gender quota; Board diversity; Female representation

1. INTRODUCTION

Across many G20 and OECD countries, women make up only about one-third of total managers. The urgent need for a more equitable gender representation in managerial top positions is well highlighted by the UN Sustainable Development Goal number 5, that aims at achieving gender equality and empower all women and girls, not only in the public sector but also in the private sector. To respond to the SDGs call for action, governments have started to introduce minimum female quota representation requirements, especially for large listed companies. The aim of this study is to assess the role of mandatory gender quota laws on firm female representation in managerial and Board positions. This is done by comparing companies that must comply with a minimum gender quota law at country level, with companies that do not. In addition, we also test for the compliance to the EU 2014/95 Directive about non-financial mandatory reporting and for firm financial performance. Using a sub-sample of the EU STOXX 600 stock index, we build a dataset spanning over the period 2010-2020. Exploiting official country regulations, we distinguish between countries that mandate a minimum gender quota on the Board of listed companies, from countries that do not. Using four multivariate linear regression models we estimate the effect of mandatory gender quota on four main indicators: percentage of women among total employees, women in managerial positions, women as executives and percentage of women in the Board.

The empirical findings demonstrate that the presence of a mandatory gender quota law has a positive effect on the percentage of female in executive and Board positions and the introduction of the EU 2014/95 Directive contributes to the positive effect on female quota in managerial, executive and Board positions.

With this study we aim at responding to the call for in-depth research on how organizations report about non-financial information (Bebbington & Unerman 2018; Hörisch, 2021) and at

enriching the current literature on the real effects of voluntary and mandatory disclosure. The real effects dimension is still in its infancy and faces many challenges (Michelon *et al.*, 2020). In addition, the existing literature on real effects so far has been focused on mandatory reporting, with a preference for the US setting, specific industries, and individual companies case studies (Leuz & Wysocki 2016). This research will cover these gaps, focusing also on voluntary reporting and exploiting an international sample of European companies. Our aim is to contribute to the academic debate within the field of corporate sustainability reporting and related performance, by investigating the real effects of such disclosure. We also contribute to the recently growing stream of research about gender equality in the private sector. Our study provides important implications for academics, practitioners and standard setters.

The remainder of this study is organized as follows: Section 2 reviews the literature and develops hypotheses, Section 3 describes the data and the research design, Section 4 illustrates the main results, Section 5 comments the results. In the Appendix we provide the list of variables definition.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 The importance of gender equality and female representation in the private sector

Promoting women's participation and gender equality in leadership roles in the private sector is a pressing policy challenge for all countries (OECD, 2020). The main Corporate Governance body that is concerned with how power and control are distributed among various actors in the firm is the Board of Directors (Kirsch, 2021). Across G20 and OECD countries, women make up only about one-third of managers. They are also far less likely than men to become chief executive officers (CEOs) or to sit on boards of private companies. The urgent need to act in this respect, is well represented by the Sustainable Development Goal number 5, that aims at

achieving gender equality and empower all women and girls. The UN explains: "Gender equality is not only a fundamental human right, but a necessary foundation for a peaceful, prosperous and sustainable world. Providing women and girls with equal access to education, health care, decent work, and representation in political and economic decision-making processes will fuel sustainable economies and benefit societies and humanity at large." (SDG Tracker, Goal n. 5 on gender equality). Among the targets and 14 indicators for SDG n. 5, there is the indicator 5.5.2 that explicitly urge business to monitor and increase the proportion of women in managerial positions. To respond to the SDGs call for action, governments have started to introduce minimum female quota representation requirements, especially for large listed companies.

At the EU-level, the Non-Financial Reporting Directive (Directive 2014/95/EU) obliges large companies to disclose in their corporate governance statements their diversity policies in relation to their administrative, management and supervisory bodies (Kirsch, 2021). The proposal for a Corporate Sustainability Reporting Directive (CSRD, 2021), submitted in April 2021, specifies that the diversity policies must include a reference to gender. Concurrent with this increased attention to regulation on women's share among Board of Directors, this study investigates the effect of such regulatory tools on the actual female representation at firm level.

2.2 Female representation in managerial positions: previous studies

Even with strong actions and mandatory gender quotas at European level, the private sector is still lagging behind the public sector in terms of equal representation of men and women in managerial positions (MSCI, 2019).

Academic literature is increasingly focusing on gender representation in the private sector, especially focusing on the impact of gender-diverse boards on firm performance. Solal and Snellman (2019) examine investor responses to board diversity and highlight a previously

unexplored mechanism. Drawing on signaling theory, they propose that an increase in board diversity leads investors to update their beliefs about firm preferences. Specifically, a gender-diverse board is interpreted as revealing a preference for diversity and a weaker commitment to shareholder value. Consequently, firms with more female directors will be penalized. This argument is tested using 14 years of panel data on U.S. public firms. Findings show that firms that increase board diversity suffer a decrease in market value and this effect is amplified for firms that have received higher ratings for their diversity practices. However, despite the large body of literature examining the relationship between women on boards and firm financial performance, the evidence is still mixed (Post and Byron, 2014). In their meta-analysis of 140 studies, the authors find that female board representation is positively related to accounting returns and that this relationship is more positive in countries with stronger shareholder protection. Not surprisingly, the relationship is positive in countries with greater gender parity (and negative in countries with low gender parity). A country gender parity level is often proxied by the presence of mandatory thresholds of gender quotas, both for public and private sector entities (Ashurst, 2021). Ahern and Dittmar (2012) exploit this institutional trait in Norway. In 2003, a new law required that 40% of Norwegian firms' directors be women. They use the pre quota cross-sectional variation in female board representation to instrument for exogenous changes to corporate boards following the quota. They find that the constraint imposed by the quota caused a significant drop in the stock price at the announcement of the law and a large decline in Tobin's Q over the following years, consistent with the idea that firms choose boards to maximize value.

Rebérioux and Roudaut (2016) examines whether women's situation within French boards has improved following the adoption of a board-level gender quota in 2011. The sample includes the listed companies belonging to the SBF120 index over the 2006-2014 period. They show that the quota has succeeded in opening the doors of boardrooms to new, unseasoned female

directors (not present on the director labor market before the regulation). More importantly, we show that women, whether unseasoned or seasoned, experience an inner glass ceiling, with "positional" gender segregation within French boards. Overall, the quota has rather amplified this segregation process, with an increase in the average within-firm gender fees gap.

2.3 The role of sustainability reporting on gender equality

To successfully monitor corporate environmental, social and governance (ESG) impacts, management not only needs to develop environmental strategies, but is must also use effective sustainability management tools for their implementation (Hörisch *et al*., 2015). Among such management tools, Hörisch *et al*., 2015 mention the importance of sustainability reporting and call for further research investigating its efficacy and empirical effects. There is a big and unsolved debate in the sustainability accounting literature about the role of sustainability reporting in altering organizational behavior. Many authors are concerned about its opportunistic use as an impression management tool (Cho *et al*., 2010; Melloni *et al*., 2017; Merkl-Davies and Brennan, 2007; Bebbington and Unerman, 2018). Evidence on the 2,000 largest stock market-listed businesses worldwide (Johnsson *et al*., 2020) shows not only that ESG disclosure is largely symbolic and intentional in nature, rather than substantive. The challenging task to distinguish between reporting quantity and quality has been discussed since many years now. Beretta & Bozzolan (2008) dispute the idea that the quantity of disclosure is a sound proxy for the quality of disclosure. Moving from the assumption that high-quality information should usefully support external users in the judgment of past and future performance, they show that disclosure quality has a strong positive statistical association with financial analysts' accuracy of earnings forecasts, suggesting a new lens through which disclosure quality can be assessed.

By focusing on the drivers of such disclosures, Dienes *et al*., (2016) demonstrate that size, media visibility and ownership structure are the most important drivers of the disclosure of sustainability reports. In contrast, other determinants such as profitability, capital structure, firm age or board composition do not show a clear tendency. Contrasting results are showed by Rosati & Faria (2019b), especially concerning the role of board characteristics on the early adoption of SDGs reporting. Using a logit model based on data from 408 organizations worldwide, the authors show that early adoption of SDGs reporting is related to a larger size, a higher level of intangible assets, a higher share of female directors, and a younger board of directors. While these studies provide empirical evidence on the determinants of early and late adoption of sustainability reporting practices, we miss evidence on the effects and consequences of this kind of reporting on both company and country level (Bebbington & Unerman, 2018).

Such empirical settings are often used to assess the real effects of accounting. Leuz and Wysocki, 2016 define "real effects" as "situations in which the disclosing manager or reporting entity changes its behavior in the real economy (e.g., investment, use of resources, consumption)" (p. 545). Christensen *et al*., 2017 look at disclosure regulation effects on safety issues in the US mining industry. Barth *et al*., 2017 test the association between integrated reporting quality (IRQ) and firm value by examining a capital-market channel and a real effects channel. They show a positive association between IRQ and liquidity, which supports the capital market channel, and a positive association between IRQ and investment efficiency, supporting also the real effects channel. Grewal *et al*., 2018 focus instead on the equity market reaction associated with the passage of the EU Directive. In 2014, the European Union (EU) passed a Corporate Social Responsibility (CSR) directive that mandates large-listed firms to prepare non-financial reports beginning from fiscal year 2017 onward.

Findings suggest that the negative market reaction is concentrated in firms with weak pre-regulation Environmental, Social and Governance (ESG) performance and disclosure. We can conclude that the equity market perceives net costs for firms with weak non-financial performance and disclosure around mandatory ESG disclosure regulation events. Baboukardos (2017) shows that the negative association between GHG emissions and firm market decreased after the introduction of the reporting regulation. More recently, Mittelbach-Hörmanseder et al., (2021) provide opposite results. By using data of firms listed in the EU STOXX 600 index for the period 2008–2016 they examine how firm value is related to corporate social responsibility disclosure. The empirical investigation indicates that the shift from voluntary to mandatory reporting, following the announcement of Directive 2014/95/EU, caused a negative association between share prices and CSR disclosure.

As it emerges from the above review of the literature, we highlight two main research gaps: First, the ongoing debate on the relationship between CSR disclosure and performance is still far from solved; we miss strong empirical evidence that demonstrates whether high quality CSR disclosure leads to better CSR performance or whether the opposite is true. Second, the real effects accounting literature needs to be expanded to non-financial disclosure, using international settings and appropriate institutional environments.

Based on the 'what gets measured gets done' attitude (Michelon *et al*., 2020), this study aims at filling the above-mentioned gaps by developing and testing the following hypotheses:

Hypothesis 1. Female representation among employees and managers is positively influenced by the country specific laws on mandatory gender quota at Board level.

Hypothesis 2. Female representation among employees and managers is positively influenced by the European requirement to disclose governance specific information.

We proxy female representation among employees and managers by using four measures: the percentage of women employees to the total number of employees of the company, the percentage of women managers among total managers of the company, the percentage of female executive members and the percentage of female members on the Board.

3. RESEARCH DESIGN AND DATA

3.1 Sample description

We sampled firms listed in the Europe STOXX 600 index as of October 2021. With a fixed number of 600 components, the STOXX Europe 600 Index represents large, medium and small capitalization companies across 17 countries of the European region: Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland and the United Kingdom. Our final sample consists of companies that published at least one CSR report during the period 2010-2020. Table I provides an overview of the sample-selection process. After removing missing archival data observations, we obtained a total of 3762 firm–year observations covering 11 reporting years. Our final dataset corresponds to a strongly balanced panel-data structure, with the panel variable equal to *FIRM_ID* and the time variable *YEAR* from 2010 to 2020.

Insert Table I about here.

Table II shows the sample composition, distinguishing by year and economic sector. By summing all firm-year observations, the Financials sector is the most represented sector in the sample. We consider Great Britain and Energy sector as reference categories in our following models.

Insert Table II about here.

3.2 Empirical models

To assess the relationship between firm female representation and legal requirements, we test the following models:

Model 1. *Women_employees =*

β0 + β1(Mandatory_female_quota) + β2(EU_Directive) + βjControls j + ε. (1)

Model 2. *Women_managers =*

β0 + β1(Mandatory_female_quota) + β2(EU_Directive) + βjControls j + ε. (2)

Model 3. *Women_executives =*

β0 + β1(Mandatory_female_quota) + β2(EU_Directive) + βjControls j + ε.. (3)

Model 3. *Women_board =*

β0 + β1(Mandatory_female_quota) + β2(EU_Directive) + βjControls j + ε.. (4)

3.3 Dependent variables

We choose to proxy the firm performance in terms of gender equality using four different indicators. All four indicators are retrieved from Refinitiv-Datastream database. *Women_employees* is the percentage of women employees to the total number of employees of the company; *Women_managers* is the percentage of women managers among total managers of the company. If there is a breakdown by category in percentage such as top, senior, middle, junior management, then the percentage of middle woman managers is considered. *Women_executives* measures the percentage of female executive members while *Women_board* captures the percentage of female members on the Board of Directors.

3.4 Independent variables

The binary variable *Mandatory_female_quota* captures the presence of country specific requirements to introduce a minimum female quota in firms supervisory and directive Boards. The information is retrieved from official country laws and regulatory documents. *Mandatory_gender_quota* is therefore a dummy variable equal to 1 if the firm is mandated to set a minimum percentage of female in managerial positions and 0 otherwise. Table III shows the European countries that have introduced such legal requirements, from 2004 onwards. Eleven Member States have introduced gender quotas for boards, Norway being the first mover in 2004 while Switzerland is the last country to implement such quotas in 2021, but only on companies with balance sheet values of more than 20 million Swiss francs or sales revenue exceeding 40 million Swiss francs.

Insert Table III about here.

The second main independent variable is *EU_Directive*, a dummy variable that distinguishes firms that issue CSR reports under compliance with Directive 2014/95/EU from firms that voluntary disclose such kind of information.

3.5 Control variables

In line with previous studies (Hahn and Kühnen, 2013; Dienes et al., 2016, Rosati & Faria, 2019a) we include firm-level control variables: *Targets_Diversity_Opportunity*, dummy variable equal to 1 if the company set targets or objectives to be achieved on diversity and equal opportunity. Any objective/target set to increase or promote diversity in the workplace

with a time frame that includes information on the promotion of women, minorities, disabled employees, or employment from any age, ethnicity, race, nationality, and religion is included in the definition. *Governance_score*, is the weighted average relative rating of a company based on the reported governance information and the resulting three governance category scores. *Social_score*, is the weighted average relative rating of a company based on the reported social information and the resulting four social category scores. The financial performance is captured by four variables: *ROA*, i.e. return on assets calculated as (Net Income – Bottom Line + ((Interest Expense on Debt-Interest Capitalized) * (1-Tax Rate))) / Average of Last Year's and Current Year's Total Assets * 100. *ROE,* return on equity calculated as (Net Income – Bottom Line - Preferred Dividend Requirement) / Average of Last Year's and Current Year's Common Equity * 100. We use financial leverage, defined as total liabilities over total assets, to control for financial stability and the natural logarithm of total assets to control for size. Our industry control is given by the economic sector number (*ECON_SEC_NUM*) that is equal to 1 for our reference category (Energy). Table A in the Appendix, provides the full list of variables definition.

4. RESULTS

4.1 Descriptive statistics

Table IV provides descriptive statistics of the continuous variables used in the study. After performing the preliminary Normality checks, we observe non-Normal values of skewness and kurtosis for the following variables: *ROE* (return on equity), *ROA* (return on assets), *Total assets* and *Leverage* (total debt over total assets). Having performed some tests, and in line with previous studies (Hummel and Szekely, 2021), we decide to take the 5% winsorization for *ROE, ROA* and *Leverage* and the natural logarithm of *Total assets*. In this way, we obtain Normal values of skewness and kurtosis for all continuous variables.

Insert Table IV about here.

Focusing on the main dependent variables, we see that the minimum percentage of women employees in the sample is equal to 8%, while the maximum is equal to 81%. The presence of women in managerial, executive and board positions is slightly less, with a minimum of 0% and a maximum of 74%, 75% and 75% respectively, reached by two companies in the sample. By focusing on female representation on the Board of Directors, Figure I compares the average female percentage in Board positions of the first available year (2010) with the last available data of 2020. In addition, we distinguish between countries that mandate a minimum gender quota and countries that do not. We see that France reaches the highest average percentage of female in the Boards in 2020 (45%). Luxembourg displays the lowest average percentage in 2020 (16,7%). On average, the 2010 female representation on Boards is much lower compared to 2020, except for Norway that shows the highest percentage in 2010 (34%), that is almost in line with the 2020 average level.

Insert Figure I about here.

Table V compares the two groups of countries. We notice that the group of countries that introduces a minimum female quota by law, effectively reaches a higher women representation in the Board composition in 2020: 34,4% vs. 32,2%. However, the countries that decide to not mandate a gender quota started with a higher percentage in 2010: 17,9% vs. 13,7%.

Insert Table V about here.

4.2 Multivariate analysis

Table VI displays the result of the multivariate regression models. We check the VIF values to exclude any multicollinearity issues among the variables and we confirm that all VIF values are smaller than 10, thus excluding any multicollinearity concern.

Insert Table VI about here.

Our results suggest that the introduction of a mandatory minimum gender quota has a positive impact on the actual percentage of female representation in both executive and board positions employees. This is shown in Model 3 and 4 described in Table VI.

A second result is that the introduction of the European Directive helped to improve the female presence in managerial, executives and Board positions. We also tested the combined effect of both mandatory gender quota and the EU Directive but results are not significant.

5. DISCUSSION AND CONCLUSION

Despite the growing importance and interest on female representation in managerial positions ((Kirsch, 2021) we still know little about the effect of mandatory gender quota requirements and related reporting requirements at firm level (Bebbington & Unerman, 2018). In this study we investigated voluntary and mandatory CSR reporting practices of European public listed firms and estimated the effects of such regulations on the percentage of women presence in managerial, executive and Board positions. Our empirical findings demonstrate that country level gender quota on firm female representation, positively influence female representation in managerial and top executive positions.

We recognize some limitations in our study. Our set of control variables is limited to the most common in the literature, however we fail to control for ESG overall performance at both country and firm level. We acknowledge that this can pose some endogeneity concerns that can

be tackled in the next developments of the study. A second concern regards the time frame under analysis. Given that the introduction of both the mandatory gender quota and the EU Directive about non-financial disclosure have been issued only in recent years, we might be able to see the long-term effects only by observing the firm performance a few years from now. Future studies should expand further the analysis provided in this study, by enlarging the sample size.

TABLES

Table I. Steps of sample selection process

Total STOXX Europe 600 companies	600
Total companies that do not publish a CSR report (in English) at least once between 2010 and 2020	-253
Total companies that do publish a CSR report (in English) at least once between 2010 and 2020	347
Total number of years under analysis (2010-2020)	11
Total firm-year observations	3817
Obervations with missing archival data	55
Final firm-year observations	3762

Table II. Firm-year observations by sector and year

Economic sector	Years											Total
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Basic Materials	38	38	38	38	38	38	38	38	38	38	38	**418**
Consumer Cyclicals	49	49	49	49	49	49	49	49	49	49	49	**539**
Consumer Non-Cyclicals	29	29	29	29	29	29	29	29	29	29	29	**319**
Energy	13	13	13	13	13	13	13	13	13	13	13	**143**
Financials	63	63	63	63	63	63	63	63	63	63	63	**693**
Healthcare	28	28	28	28	28	28	28	28	28	28	28	**308**
Industrials	47	47	47	47	47	47	47	47	47	47	47	**517**
Real Estate	23	23	23	23	23	23	23	23	23	23	23	**253**
Technology	31	31	31	31	31	31	31	31	31	31	31	**341**
Utilities	21	21	21	21	21	21	21	21	21	21	21	**231**
Total	342	342	342	342	342	342	342	342	342	342	342	**3762**

Table III. Evidence of gender quota law for European firms

Country	Mandatory female quota	Minimum quota required	Effective year	Target companies
Austria	yes	30	2018	All listed companies
Belgium	yes	33	2011	All listed companies
Switzerland	yes	30	2021	Companies with balance sheet of more than 20 million Swiss francs or whose sales revenue exceeds 40 million Swiss
Germany	yes	30	2015	All listed companies
Denmark	yes	40	2013	All listed companies
Spain	yes	40	2007	Large companies with more than 250 employees
France	yes	40	2011	All listed companies
Italy	yes	33	2011	All listed companies
Netherlands	yes	30	2011	All listed companies
Norway	yes	40	2004	All listed companies
Portugal	yes	33	2018	All listed companies
Finland	no			
Great Britain	no			
Ireland	no			
Luxembourg	no			
Poland	no			
Sweden	no			

Table IV. Descriptive statistics of continuous variables

	Mean	SD	p25	Median	p75	Min	Max	Skew	Kurtosis	N
Women employees	36.91	15.56	23.74	35.19	49.20	8.00	81.00	.36	2.38	2897
Women managers	27.68	12.67	18.00	26.00	36.00	0.00	74.00	.71	3.48	2455
Women executives	12.57	11.66	0.00	11.11	20.00	0.00	75.00	.77	3.24	3255
Women board	25.39	13.04	16.67	25.00	33.33	0.00	75.00	-.09	2.58	3255
Governance score	60.59	21.67	45.67	64.14	78.11	.55	98.54	-.53	2.43	3263
Social score	67.30	20.60	54.71	71.44	83.53	.76	98.47	-.83	3.11	3263
ROE (w)	15.30	12.11	7.33	13.31	21.40	-5.01	44.50	.69	3.17	3565
ROA (w)	6.55	5.40	2.35	5.49	9.20	-.38	20.01	.93	3.27	3561
Total assets (ln)	16.70	2.15	15.35	16.48	18.04	.88	22.58	-.69	9.38	3634
Leverage (w)	.25	.16	0.13	.248	.37	.01	.55	.16	2.05	3632

Table III shows the main descriptive statistics for continuous variables present in the study. After performing the preliminary Normality checks, we decided to use the natural logarithm Total Assets and to winsorize ROE, ROA and Leverage at 5% level.

Table V. Comparison of average female Board representation

Average female percentage in Board positions		
	2010	**2020**
Countries with mandatory female quota	13,7	34,4
Countries without quota	17,9	32,3

Table VI. Multivariate linear regression models output

	Mod1	Mod2	Mod3	Mod4
Dependent variable:	Women_employees	Women_managers	Women_executives	Women_board
Independent variables:				
Mandatory female quota	0.198	0.721	2.6289592**	8.6492404***
EU_Directive	0.162	2.3206686***	3.1883641**	6.9826598***
Mandatory female quota # EU_Directive	0.225	0.448	1.085	-0.596
Control variables:				
Targets_Diversity	0.222	0.476	1.8296827**	-0.325
Governance_score	-0.006	0.028	.10070282***	.13372453***
Social_score	0.011	.05328599*	.04339869*	.19512854***
Total_assets	0.569	0.671	0.297	.73133337*
ROE	0.034	0.014	-0.004	.09354316*
ROA	-.12874101*	0.014	0.037	-0.162
Leverage	0.269	2.662	0.743	1.617
Fixed effects: Economic sector				
Basic Materials	0.811	1.355	-1.057	2.666
Industrials	6.420	1.907	2.989	4.327
Consumer Cyclicals	17.952772***	11.0419***	-0.014	3.533
Consumer Non-Cyclicals	16.458503***	11.395021***	0.383	3.639
Financials	22.62255***	10.957594***	0.768	3.869
Healthcare	26.128354***	16.063481***	2.420	2.793
Technology	6.8106799*	3.805	-0.589	5.7498853*
Utilities	-1.762	2.705	1.484	1.839
Real Estate	24.571862***	18.285705***	11.845925***	4.688
Fixed effects: Country				
AT	-0.891	-4.0701123*	-12.688618***	-1.079
BE	3.613	2.736	-1.458	2.060
CH	-0.034	2.142	-7.5765048***	-3.5662632*
DE	-2.707	-3.9907444*	-9.7160049***	-5.1890021***
DK	1.785	1.779	-7.591166***	-2.083
ES	3.182	1.035	-7.6209408**	-13.456928***
FI	-0.072	3.585	4.539	12.196986***
FR	2.901	3.094	-5.600406**	1.827
IE	-9.7892313**	-3.915	-4.744	-5.7941077***
IT	-3.084	-1.233	-8.4922713***	-3.730
LU	5.6698655*	-0.637	-0.484	-6.521
NL	-0.624	-2.214	-2.959	-7.9787434***
NO	-1.689	0.367	4.320	5.865
PL	23.295329***	8.484	-5.448	-1.191
PT	17.643	15.657	4.376	-19.50849***
SE	-4.746	0.817	5.7933475**	12.210912***
Constant	14.610674*	0.412	-1.893	-15.815408**

legend: * p<.05; ** p<.01; *** p<.001

Figure I. Average female quota in Board (percentages by country)

Average female quota in Board

Countries with mandatory gender quota   Countries without mandatory gender quota
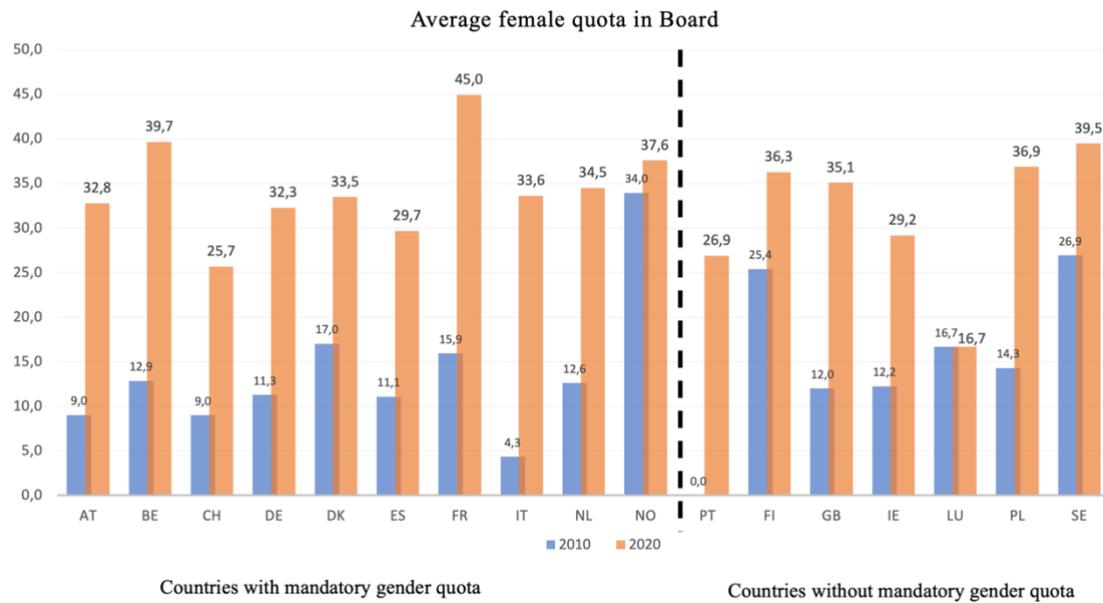
APPENDIX

Table A. Variables definition

Variable name	Definition	Source
COUNTRY_ISO_CODE	Company ISO country code.	Refinitiv
COUNTRY_NUM	Unique progressive number for each country in the list. It takes values from 1 to 17. Reference country is GB = 1.	Own codification
ECON_SEC_NAME	Economic sector name associated with economic sector code, according to the Refinitiv Business Classification.	Refinitiv
ECON_SEC_NUM	Unique progressive number for each economic sector in the list. It takes values from 1 to 10. Reference category is Energy = 1.	Own codification
EU_Directive	Dummy variable that distinguishes firms that must comply with Directive 2014/95/EU from firms that do not.	Own codification
Governance_score	Governance Pillar Score is the weighted average relative rating of a company based on the reported governance information and the resulting three governance category scores.	Refinitiv
Leverage	The ratio of total liabilities to total assets.	Own codification
Mandatory_gender_quota	Dummy variable equal to 1 if the firm is mandated to set a minimum percetnage of female in managerial positions.	Own codification
ROE	Return on equity calculated as (Net Income – Bottom Line - Preferred Dividend Requirement) / Average of Last Year's and Current Year's Common Equity * 100	Refinitiv
ROA	Return on assets calculated as (Net Income – Bottom Line + ((Interest Expense on Debt-Interest Capitalized) * (1-Tax Rate))) / Average of Last Year's and Current Year's Total Assets * 100	Refinitiv
Social_score	Social Pillar Score is the weighted average relative rating of a company based on the reported social information and the resulting four social category scores.	Refinitiv
Targets_Diversity_Opportunity	Dummy variable equal to 1 if the company set targets or objectives to be achieved on diversity and equal opportunity; 0 otherwise.	Refinitiv
Total_assets	The sum of total current assets, long term receivables, investment in unconsolidated subsidiaries, other investments, net property plant and equipment and other assets.	Refinitiv
Total debt	The sum of all interest bearing and capitalized lease obligations. It is the sum of long and short term debt.	Refinitiv
Women_employees	percentage of women employees to the total number of employees of the company (percentage of women employees = number of women/total number of employees*100)	Refinitiv
Women_managers	Percentage of women managers among total managers of the company. If there is a breakdown by category in percentage such as top, senior, middle, junior management, then the percentage of middle woman managers is considered. (Percentage of women managers= number of women managers/total number of managers*100)	Refinitiv
Women_executives	Percentage of female executive members.	Refinitiv
Women_board	Percentage of female members on the board.	Refinitiv
YEAR	Year under analysis. It takes values from 2010 to 2020 included.	Refinitiv

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