

The Impact of Corporate Board Quotas on Gender Equality

Evaluation of an Italian policy in the post-pandemic
scenario

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To my family and Claudia

Abstract

The 5th of March 2020, the European Commission gave its green light to the Gender Equality Strategy 2020-2025, which is a plan to make significant progress by 2025 towards gender equality and women's empowerment.

This thesis project aims at analysing the current gender discrimination status among the Italian enterprises, by evaluating the Gender Quota Law 160/2019 mandating the introduction of a 40% gender quota for both genders in the board of directors of the listed or state-owned firms.

Using a Propensity Score Matching and a Difference in Difference approach, the project will study the compliance of the treatment group with the Law and therefore the changes in the gender composition of the boards of directors. Furthermore, based on available data on women characteristics and assumptions on their preferences, I will try to explain the impact of gender quotas on the financial efficiency of the enterprises and their proficiency in certain aspects, such as the number of employees and the total production value.

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Introduction

UN Women states that “Equality between women and men (gender equality) refers to the equal rights, responsibilities and opportunities of women and men and girls and boys. Equality does not mean that women and men will become the same but that women’s and men’s rights, responsibilities and opportunities will not depend on whether they are born male or female. Gender equality implies that the interests, needs and priorities of both women and men are taken into consideration, recognizing the diversity of different groups of women and men.”

During the last two decades, the theme of gender equality rose at a remarkable pace in social awareness, until it became one of the core issues in political and economic agendas worldwide.

The European Union outlined five main fields in which equal rights and equal opportunities for both genders are more or less threatened and, by now, not fulfilled. They are: Health, Knowledge, Money, Power, Time and Work. On one side, the health, knowledge and time domains have registered considerable improvements over the years thanks to numerous battles for fairness and equality; on the other side, breaking the gender gap in the money, power and work sectors seems a hard challenge.

For this reason, policymakers around the world have sought to face historical imbalances in political representation, leadership positions, and decision-making processes through the introduction of various forms of gender quotas, leading to a diverse range of experiences and outcomes.

Quotas are designed to guarantee a minimum level of female representation in decision-making bodies, corporate boards, electoral processes and other leading roles. The logical assumption is that increased participation of women in these domains will not only widen different perspectives and mentalities, but also lead to policy outcomes that better reflect the needs and aspirations of all members of society.

What is more, gender equality is considered a crucial priority for the European Union post-pandemic recovery. Specifically, the implementation of the Recovery and Resilience Facility (RRF) requested Member States to present their own National

Recovery and Resilience Plans with a particular concern for gender equality as a short and long term objective. In this framework, Italy received the most substantial allocation of resources among all national plans under the RRF, proportional to the damages caused by the COVID-19 crisis, holding the potential to drive a significant shift towards gender equality in the country.

The Italian National Recovery and Resilience Plan (NRRP) included a Strategy for Gender Equality 2021-2026 aiming at gaining several percentage points in the EIGE Index (European Institute for Gender Equality) through the achievement of gender equality in different public and private sectors. One of the main points of this strategy is the Law 160/2019 which imposes to all public listed firms and State owned firms a quota of at least 40% of female representation in the corporate boards of directors. Its goal is to reduce the widespread gender discrimination in the working environment and to guarantee equal and fair opportunities to be promoted to leading and decisional positions.

This thesis endeavours to run a comprehensive evaluation of the aforementioned law as a social policy tool, examining the gender quotas effectiveness, implications, and potential limitations in advancing gender equality.

In the first chapter, concepts like gender gap, gender discrimination and glass ceiling are deeply presented and explained in all their possible forms, introducing everyday scenarios and the challenges that women have to face all around the globe. Furthermore, I will produce a complete review of the broad literature existing on this topic, focusing before on the European level, with some exemplary cases like Norway and Spain, to cover later the Italian national situation. Concerning this latter, I will mainly analyse the outcomes obtained from the studies of the previous gender quota policy, Law 120/2011, given that there is little to no contribution regarding the law, subject of this thesis, implemented eight years later.

Proceeding to the second chapter, I will precisely outline the processes of the data collection, the choice of the empirical strategy to follow and the most suitable evaluation method to implement. It will be needed to combine two complementary methods, Matching and Difference in Difference, to better define the targeted sample and to guarantee unbiasedness in the results. The analysis will be divided into two stages. The first one focuses on the compliance to the policy for the treated companies and therefore on its consequences on the board composition. Whereas the second one will regard the indirect impact of the treatment on the firms' proficiency and productivity variables.

I will finally conclude with a cost-benefit analysis, defining which could be the difficulties and the advantages related to the enforcement of such a social policy, and with a description of the limits of this project.

Overall, this thesis aspires to contribute to the broad evidence-based policymaking

by identifying the strengths, weaknesses, and potential of gender quotas in corporate boards. This study aims to inform every sector of the society about the importance and necessity of a more gender equal environment in today's complex and evolving world.

Chapter 1

TACKLING GENDER DISCRIMINATION: A THEORETICAL BACKGROUND

1.1 Gender Gap and the "Glass ceiling" phenomenon

In order to evaluate the effectiveness and the efficiency of the policies implemented both at a European and a national level, it is of extreme importance to distinguish the two concepts of gender inequality and gender gap, which have often been equated and used interchangeably.

According to the Shang (2022), gender gap defines the observed differences between men and women in the several social and economic indicators; whereas gender inequality refers to the portion of the gender gap that is driven by gender bias and unequal rights and opportunities. The remaining part of the gap refers to natural preferences or comparative advantages between men and women, such as the physical strength for men or a greater sensitivity for women. Therefore, policies should aim at narrowing gender inequality, which does not necessarily lead to entirely extinguish the gender gap. However, for the sake of readability and in respect of the wide literature on this topic, every time I will mention “gender gap”, I will be referring to the part of this

latter, coinciding with violations of equal rights and opportunities or to the gender segregation, which is the separation of individuals based on their genders, leading to different opportunities, roles and public recognitions.

Reducing gender inequality, as previously mentioned, is one of the main global social and economic goals, especially from the beginning of the XIX century.

The World Economic Forum, indeed, witnessed that in 2015 slightly more than half of the gender gap in economic opportunities has been cut all around the world and, considering the pace of progress, it estimated that it will take at least another 118 years to completely vanish (Ferrari et al., 2016).

Focusing on the European level, more or less pronounced cases of gender inequalities have been registered in several different fields all around the Union. For this purpose, the European Institute for Gender Equality (EIGE) has developed the Gender Equality Index, a tool measuring the gender equality status in different economic and social areas of the EU and of its Member States. It was first introduced in 2013 and updated every two years until 2019, when they began to publish it annually. The index takes into consideration the six core fields in which the level of gender equality has mainly been threatened: Health, Knowledge, Money, Power, Time and Work.

The domain of Health is split into three main aspects: health status which is linked to life expectancy, health behaviour and access to health services. Knowledge, instead, measures both gender inequalities in participation in education, training, educational attainment and gender segregation. The latter is strengthened by the gender stereotype that classifies women more suitable for fields such as welfare, humanities and arts, whereas men for the so-called STEM specialisations. The Money indicator identifies gender inequalities in access to financial resources, including earnings and income differentials and women's and men's economic situation. The Power aspect measures gender equality in decision-making positions across the political (Parliaments, Governments and Assemblies), economic and social spheres. Time, in turn, depicts gender inequalities in the allocation of time spent for child-rearing, domestic maintenance and social interactions. Finally, the domain of Work gauges the degree to which both women and men have equitable access to employment opportunities and favourable working conditions.

They are, anyway, all interconnected through a causal and consequential chain. The last EU Commission Report (2023), indeed, outlined gender segregation as that phenomenon, often linked to gender stereotypes, which narrows life choices, education options and employment possibilities down. Furthermore, in terms of money, it also worsens the gender pay gap, by limiting the possibilities for women to reach certain jobs and certain leading positions and by exacerbating unequal gender power in both public and private spheres.

This vicious mechanism keeps on reinforcing gender stereotypes.

In this paper I will focus especially on the work and power fields, since even though in the last few years women's educational attainment has overtaken the men's and

women are ready and qualified to take on leadership responsibilities, they are stuck at lower roles and they remain significantly under-represented in the corporate boards (EU Commission Report, 2023). Therefore, women are generally earning less than men both at the same working level and with similar qualifications (OECD, 2012; OECD, 2017; NSF, 2021) and because of the segregation in low skilled, atypical or undervalued jobs (Donà. A., 2022).

This does not find any rational explanation or any fair reason, since there is no lack of availability of highly-skilled women with the ambition and the qualities to lead. Another contribution to this gender segregation comes from discriminatory social norms and stereotypes concerning the skills of women and men, as well as the devaluation of women's work (EU Commission, 2020). This kind of segregation is known as "vertical segregation" which refers to the fact that women are generally much more absent in managerial and leading positions and in addition to that, they usually represent a very small minority in the management team of enterprises. When this phenomenon keeps occurring and women are stuck for a long time in the lowest roles of organisations, experiencing lots of difficulties in accessing a full development of career up to the apex, we can talk of a "Sticky floor" or of a "Glass ceiling" (Osservatorio Job Pricing, 2022).

These systemic unequal entry barriers for boards of directors or decision-making committees positions are still in place, affecting the competitiveness of companies and society as a whole and unfortunately they do not seem to disappear easily or quickly without any strict action. The 2022 Gender Equality Index published by the EIGE indeed demonstrated that, even though the EU score in the power domain has increased by 2.2 points in recent years, it is the lowest of all the domains considered by the index.

It should be expected as a normal process that gender inequalities narrow as countries develop and new advanced technologies, such as the smart-working possibility or labour-saving household appliances, get implemented and widely adopted (Jayachandran, 2015; Tewari I. and Wang Y., 2021). Nevertheless, the connection between women's empowerment and economic development may be insufficiently robust to make them spur each other. Due to the social and economic implications of gender inequality, policy measures are required to accelerate the progression (Duflo E., 2012) (Shang, 2022).

All these discriminatory phenomena, which are characterised by lack of fairness, of equal rights and of comparable opportunities between the two genders, have even worsened as soon as the COVID-19 pandemic spread all around the globe.

The global health emergency, whose alert status lasted for approximately two years, has critically damaged the labour market too, threatening the stability and the productivity of several small and medium enterprises (SMEs) all over the world. The employers had to face an alarming financial problem derived from a resources and money shortage due to a rapid reduction in the production. These factors inevitably led to massive corporate lay-offs and cutbacks, where the mostly hit category was,

once again, the women employees. In English-speaking countries, they have introduced the concept of "She-cession" (a combination of "she" and "recession"). This term accurately describes the phenomenon where women have been the most severely affected by the economic crisis resulting from the pandemic, which contrasts with previous recessions that were labelled as "mancessions" due to the disproportionate impact on men (Osservatorio Job pricing, 2022).

A study conducted to examine advancements in gender equality across 146 countries found out that its pursuit has not rebounded following the impact of the pandemic. Furthermore, as international crises worsen, the potential for a global decline in gender equality is further exacerbated.

The study also indicates that women's employment has declined, with fewer opportunities available to them. They exhibit reduced motivation to enter the workforce or, if seeking a change, are more likely to give up on job searches compared to men. These discouraging trends come from the challenges women face in securing employment. Therefore, women skills and contributions remain underutilised to the detriment of the entire economy.

Indeed, it has been demonstrated that a balanced working environment, with men and women sharing the same positions and discussing together on several topics benefits not just women, but it enlarges the economic point of view and benefits everyone, through several potential channels. Women tend to make more proper decisions regarding child rearing, gender-mixed teams are more efficient and lower gender inequality can lead to stronger economic growth and financial stability, more jobs, and less income inequality (Shang, 2022).

What is more, the inclusion of diverse genders on corporate boards can enhance the decision-making process of a company due to the combination of different knowledge and perspectives (Post et al., 2011). Furthermore, female directors, with their unique viewpoints, tend to exhibit more participatory and democratic approaches during the decision-making phase compared to their male counterparts (Bear et al., 2010). Consequently, they contribute to better decision-making and improved outcomes for the board (Marchini P.L., 2021).

Notwithstanding the fact that numerous benefits and advantages of having a gender balanced leading team in every kind of company have been proven and confirmed, it does not seem that the economy and the society on its whole are moving naturally towards a more gender equal environment. Therefore, the European Union first, and all its Member States later, have rapidly taken several steps to implement policies aiming at reaching gender equality in lots of different fields, especially in the workplace

1.2 Literature review

The equality between women and men is one of the EU's main principles and achieving it at the fastest pace possible has been a fundamental goal of the Union since the beginning of the century. Gender equality, indeed, is the core of the political agenda of the Von der Leyen Commission, which set out an ambitious strategy for 2020-2025. This roadmap towards a gender equal Europe sets out all the EU's political, social and economic objectives, which must be shared by all the EU Member States, together with the actions required to help achieving them. The goal is creating a "Union of Equality" where the freedom to follow a desired path in life, the right to have equal opportunities and the possibility to participate and lead are granted to individuals of all genders, ages and various backgrounds (EU Commission, 2023).

The COVID-19 pandemic and the following economic crisis, as previously mentioned, contributed to slow down the process towards a gender equal Europe and to interrupt the progress made until that moment. The Union gradually emerged from the pandemic last year in 2022 and that was also the third year of implementing the strategy, characterised by the attainment of significant measures to strengthen women's rights and gender equality.

Several policies and initiatives already in place were proposed again in a stricter version in order to face the threat imposed by the pandemic, especially in the working field, given that it was the sector most hit by the crisis.

Ten years after the introduction of the Directive on gender balance in company boards, introducing quotas for the under-represented sex, a new law aiming at breaking the "glass ceiling" on the boards of directors of listed companies and allowing qualified women to reach deserved leading positions was enforced. This proposal of the Commission, together with the one for a directive on pay transparency measures, will help guarantee that the principle of equal pay for equal work or work of equal value, established in the Treaty since 1957, finally becomes a concrete reality (EU Commission, 2023).

In the guidelines established by the EU, all the 27 Member States had to ensure a gender equal environment implementing social, political and economic policies at a national level, to tackle the diffuse gender discrimination. Even though gender differences in labour participation rates have shrunk in the last few years, the gaps remain high worldwide, with large variations across regions and countries (Alesina A. et al., 2013; Bernhardt S. et al., 2018; Jayachandran, 2021).

1.2.1 The European Policies

The European Commission, for the Gender Equality Strategy 2020-2025, required the national plans to incorporate measures promoting gender equality. These measures involve narrowing the gender pay gap, addressing inequality between men and women in the workplace, facilitating women's upskilling, and encouraging flexible working arrangements (Donà A., 2022).

Specifically for the work field and the opportunities domain, the Strategy enforces a new law that requires a quota, for the targeted subjects, of female members in the boards of directors of listed companies across the European Union (Maida A., Weber A., 2019). Overall, the implementation of gender board quota policies aroused skepticism in most of the European countries. Moreover, vivid debates regarding the potential impact on both firm performance and the economy as a whole accompanied it.

Board quotas, however, differ in terms of specification and consequences for noncompliance across the Member States (Latura A., Weeks A., 2022). A 40% quota was immediately introduced at the beginning of the century by some of the pioneers of gender equality, such as Norway, to be followed later by other countries like France, Spain and Italy (??). In case of non-compliance, the consequences range from no punishments, as in Spain, to financial fines, as it happens in France, to administrative penalties and loss of legitimacy in Italy. As mentioned above, Norway was the first country introducing a policy on quotas to shrink the gender gap in the boards of Norwegian companies.

In December 2003, the Norwegian Parliament approved a legislation which mandated that all public-limited firms must ensure a minimum representation of 40% women on their boards of directors by July 2005. When this legislation was implemented, women occupied merely 9% of board seats (Ahern K. R., Dittmar A. K., 2012). Several researchers studied, with no conclusive results, whether the increased female representation in leading roles in Norwegian companies thanks to the quota had any effect on firms' economic performance (Ferrari G. et al., 2016).

According to Matsa D. A. and Miller A. (2013), companies impacted by the quota law have experienced a decrease in unemployment, leading to higher labour costs and hiring rates and simultaneously reducing short-term profits. Furthermore, Ahern K. R. and Dittmar A. K. (2012) revealed that the implementation of gender quotas resulted in unfavourable market reactions, possibly due to the inclusion of young and less experienced board members. Indeed, the constraint imposed by the policy provoked a significant drop in the stock price and a significant decrease in Tobin's Q, the relative value of a company's stock on the overall market, along the following years. However, Nygaard (2011) argues that the extent of this impact varies depending on the difference in information available to independent board members and company managers, as highlighted in Ferreira's research (2015) as well.

All the other European countries, during the last twenty years, have followed the Norwegian example and, under the Gender Equality Strategy directives, they have in turn implemented laws imposing gender quotas for corporate board membership. The main goal is that of breaking the persistent “glass ceiling” which hinders the progress of women in reaching leading corporate positions (Maida A. and Weber A., 2019).

According to some findings in the literature, primarily based on US companies, a mix of different scenarios can take place (Post C. and Byron K., 2015). Some studies have discovered a positive correlation between female representation and firm performance (Erhardt N. L. et al., 2003; Smith N. et al., 2006), while others have observed a negative correlation (Adams R. B. and Ferreira D., 2009; Minguez-Vera A. and Martin A., 2011). On the other hand, several studies have found no significant correlation (Rose C., 2007; Francoeur C. et al., 2008; Carter D. A. et al., 2010).

Therefore, it is not totally clear whether a wider quota in the companies’ board of directors is favourable and beneficial for their performance and outcome in terms of proficiency and sustainability.

Talking about sustainability, several studies were made on the impact that a larger presence of women in corporate boards can have on the value given to environmental damages and the sensitivity towards themes, such as GHG emissions and pollution. It is generally expected that women have on average a greater awareness of the threat to the environment and a stronger responsiveness for sustainability. Liao L. et al. (2015) found a positive and significant effect of female board participation on GHG disclosures among UK firms, while Ben-Amar W. et al. (2017) observed that a significant presence of women in the corporate boards increased the voluntary disclosure of climate change information in Canada. Whereas, Prado-Lorenzo J. M. and Garcia-Sanchez I. M. (2010) did not discover any noteworthy influence of women serving as board members on companies’ concerns with greenhouse gas (GHG) emissions.

Different were the two cases of France and Spain, two countries that introduced gender quotas in their companies’ board of directors right after the Norwegian example.

Comi S. et al. (2020) showed that in the French scenario gender quotas had generally negative impacts on productivity, employment and profitability, but a positive effect on leverage. However, the parallel common trends assumption holds only for ROA (Return On Asset) and leverage, out of a total of five outcomes considered.

In Spain, instead, gender quotas did not seem to have a significant impact on firms’ proficiency. The absence of noticeable effects could be due to the way the law was formulated and its effects on compliance. In Spain gender quotas were implemented without imposing stringent penalties for non-compliance, therefore no significant abrupt changes were observed in the proportion of female directors following the formal introduction of gender quotas in 2007 (Comi S. et al., 2020).

Overall, regardless of the country, the common increase in focus on gender equality, experienced by most of the companies after the implementation of gender quotas,

relies on two main assumptions (Latura A, Weeks A., 2022).

Firstly there is an element of identity at play. As the number of women working in the board increases, the board's attention towards issues regarding women also intensifies, especially as a "critical mass" of women representation is achieved. There is, on average, a greater comfort level in raising and addressing "women's issues" (Mendelberg T. et al., 2013). This post-quota scenario is self-enforcing, as it facilitates efforts to enhance female leadership, address gender pay gaps within the organisation and tackle work-family concerns.

The second reason is what we refer to as "spillover." The introduction of the quota itself can generate "policy feedback effects" (Pierson P., 1993; Campbell A. L., 2012). It is reasonably thought that the quota law increases awareness of gender inequality among both genders in leadership positions within the company. This can lead to a shift in existing perceptions regarding these issues or evoke concerns of negative repercussions.

Nevertheless, according to the European Commission (EU Commission Strategy 2020-2025), none of the European Member States has achieved complete gender equality to date and progress seems quite slow. They scored around 67.4 out of 100 in the EIGE 2019, a result which has risen by just 5.4 points since 2005.

Among the different cultures, one of the most conservative in terms of gender equality and equal rights and opportunities is Italy, which is consequently one of the slowest countries in reducing gender discrimination and the gap in the workplace. The Global Gender Gap Report 2017 confirms this situation by ranking Norway at the second place while Italy at the 82nd place, out of 144 countries (Maida A. and Weber A., 2019).

1.2.2 The Italian Gender Quota Law

Sharing the reasons outlined by Di Bella E. et al. (2021), this thesis will mainly focus on the Italian situation. Italy is an exemplary case in terms of gender equality policies implemented over the years and for the progress made. Being one of the countries among all the EU-28 Member States with the lowest score on the gender equality index in 2005, at the 26th position, it was the one which improved its ranking the most during the last fifteen years. In the last Gender Equality Report (2019), indeed, Italy got an intermediate GEI score (63.0 out of 100), moving to position 14. As it happens in most of the cases, these progresses have not been uniform along the years, neither in the different domains of the index, nor over the various areas of the country. Secondly, relating to this latter concept, several different socioeconomic studies on this topic found out that there is a significant heterogeneity between the northern and the southern regions of the country.

What is more, the Italian case is theoretically and empirically interesting when looking at the power and work domain. Italy registers a large and consistent gender gap in employment and in leading corporate roles (Eurostat 2019). As a consequence, the Italian government gives much less relevance to childcare and work-family assistance expenditures than most of the other advanced economies. Furthermore, social policies target only mothers rather than both parents when dealing with child rearing assistance, creating a systemic gender inequality (Narazani E. and Figari F., 2017). Therefore, it is expected that if board quotas increase corporate sensitivity to gender equality and fair opportunities, it should be easier and more immediate to observe in a country like Italy, where firms operate giving a meaningful contribution (Levy J. S., 2008).

Following the example of Norway, Spain, France and other European countries, Italy introduced its first law for gender equality in 2011. The law 120/2011, also known as Golfo-Mosca Law, applied to all publicly listed or state-owned companies forcing them to appoint at least 33% of both genders on their boards. A transition period consisting in three board-terms is given to firms in order to comply with the law and for the first-board-term they are allowed to have only one-fifth (20%) of the board seats held by females. In case of non-compliance by a firm, CONSOB, the regulatory authority of the Italian Stock Exchange, issues a warning to the company. The company is given a transitory period of four months to comply. If the company keeps disregarding the requirements even after the warning, it is subject to a fine ranging from EUR 100,000 to EUR 1,000,000. In the extreme case that the company still fails to comply and does not respond to a second warning within the subsequent three months, the appointment of all elected members will be declared invalid (Ferrari G. et al., 2016). In order to circumvent the Golfo-Mosca law and not be forced to increase the number of women in corporate boards, companies could also de-list from the stock exchange. However, as outlined by Maida A. and Weber A. (2019), according to historical data directly accessible at the official website of the Borsa Italiana (Italian Stock Market), Italy did not report a significant peak in the rate of delistings after the announcement of the policy.

Alessia Mosca, one of Italy's board quota law co-authors stated "I believe that this law has allowed us to change the perception of the importance of women in society and politics". Lella Golfo, the other coauthor, added that the time has come to create "a culture of sharing family responsibilities and a high level of support for families, public and private." (Latura A., Weeks A., 2022).

As soon as this policy started giving feedback and producing interesting outcomes, various authors were encouraged to deeply analyse its consequences in the short, medium and long term, obtaining quite significant results.

Descriptive statistics revealed, on average, a high compliance to the policy. Indeed, even though at the introduction of the law, the number of women on boards in

Italy was quite low, less than 10%, which meant that there were no more than 122 female directors; later on, in 2014, the total amount of women in leading positions increased to 327, almost three times the initial composition (Magnanelli B. S. et al., 2017). Moreover, comparing the personal characteristics of board's members before and after the fulfilment of gender quotas in listed companies, studies revealed that, on average, boards' members are younger, more educated, but with less leading experience. Ferrari et al. (2016) witnessed a wide and significant increase in the percentage of directors with a graduate or postgraduate level of education, among both men and women, together with a large and significant upgrade in the percentage of managers who studied abroad and fewer elderly members than before the quotas.

Personal features aside, lots of analysis have been run to verify whether the introduction of gender quotas affected firms' performance and strategy. The results obtained are curious, not always predictable and sometimes hard to justify.

The relationships between women's empowerment and stock market returns, for instance, are various. Wolfers (2010) discovered no disparities in stock price performance between companies led by women and other firms. Dobbin and Jung (2011), in contrast, affirm that women on corporate boards tend to have a negative impact on stock prices and a lower likelihood of positively affecting profitability. Ryan and Haslam (2005) find that the appointment of a female director leads to a significant increase in share price. Ferrari et al.'s findings (2016) suggest that a higher proportion of women on the board is associated with a notable decrease in stock price volatility, therefore a reduction in the company's riskiness.

This risk aversion tendency, typically associated with a female temperament, beside the benefits as we have seen with the stability of the stock price, could also generate either difficulties or no effects to the companies' efficiency. A negative impact of gender diversity on some measures of firms' performance such as Tobin's Q and Return On Assets (ROA) was detected by Adams R. B. and Ferreira D. (2009). On the other hand, Gagliarducci S. and Paserman M. D. (2014) found no statistically significant effects of female leadership on a firm's outcomes.

Furthermore in order to detect significant changes in the companies' structure and proficiency it should be useful to compare either countries which have both introduced a gender quota policy but with different structural and cultural characteristics, such as Italy and Norway, or similar countries but with different policy priorities, among which one has not introduced quotas yet, such as Italy and Greece.

In the first case, Italy and Norway differ strongly in terms of labour market results and gender attitudes and it is evident that Italy is far less egalitarian in society compared to Norway. Nevertheless, in both countries, the forced enforcement of gender quotas on boards of directors is just as ineffective when it comes to enhancing the progress of women in their careers to higher positions, which means that board quota policies alone are inefficient in raising women representation in managerial roles, at least in the short run (Maida A. and Weber A., 2019). What is more, it is still uncertain whether

women in higher corporate positions actively support the career progression of other women or not. Kunze A. and Miller A. R. (2017) discovered significant evidence for positive spillovers of women at various employment levels within large Norwegian companies. However, Bagues M. et al. (2017) observed that female evaluators exhibit less favourability towards female candidates compared to male candidates, resulting in a negative impact on the chances of female candidates when female evaluators are involved.

In the second case, comparing the corporate reports of publicly listed companies in both Italy, which introduced a quota in 2011, and Greece, with no quota, Weeks A. and Latura A. (2022) found relevant changes in the firms' organisation and long term effects. In Italy, they registered a positive spillover right after the adoption of the law in 2011 and the policy was successful in both short and long term, increasing the number of women in Italian corporate boards from 5% in 2010 to 36% in 2019. Furthermore, the results indicate that implementing the quota in Italy led to a significant 50% increase in the overall focus of companies on gender equality matters (??), particularly in addressing the disparity in leadership roles, pay gaps and the underlying factors related to family care that contribute to this gap (Weeks A. and Latura A., 2022).

The progress made in terms of gender equality and women empowerment during the decade 2011-2019 suffered an unexpected shock with the occurrence of the COVID-19 pandemic outbreak in 2020. As it happened in most of the European countries, Italy experienced a 'She-cession' during the COVID-19 crisis (European Parliament 2021). This refers to the dramatic decline in the female employment rate, due to the fact that women were forced to manage caregiving responsibilities while staying at home (Profeta P., 2020).

In order to face this crisis, Italy approved a NRRP in the summer of 2020, driven by the financial aid coming from the European funds, which included a series of measures to be implemented till 2022 (Donà A., 2022). One of the first steps was the enforcement in December 2019 of the law 160/2019, which reformed the law 120/2011 related to gender discrimination, and in November 2021 of the law 162/2021 reforming the Equal Opportunities Code (Law Decree 198/2006) concerning the gender pay gap. They are both part of the Italian Strategy for gender equality 2021-2026 and they aim for a more gender equal environment in the work sector, in terms of representation and earnings. The law 160/2019, which is the object of this evaluation, imposes to all public listed firms and state-owned firms a quota of at least 40% of female representation in the corporate boards of directors.

The compliance with this law came with reduced troubles, few were the cases of non-compliance or delays in the application of the policy. Indeed, as reported by CONSOB, at the end of 2022 women account for 43% of boards of directors and 41% of boards of statutory auditors.

As for the previous policy, different authors have studied how this law has changed the targeted firms' outcomes in the last two years, how their proficiency and their strategy were affected by the increase of women in the leading and decisional positions.

Marchini P. L. et al. (2021) have evaluated the impact of the quota on the expenditures for environmental protection and they confirmed that, the appointment of female directors through a coercive legal approach led to a decrease in greenhouse gas emissions and an increase in the recycling of waste within firms. These assumptions derive from the peculiar characteristics, backgrounds, and strong commitment to the environment demonstrated by female directors. Such features contribute to enhancing firms' ability to make environmentally conscious decisions. Additionally, taking into account theories of gender socialisation and overconfidence, they found significant support in the assumption that the presence of women among stakeholders and experts have a negative correlation with environmental violations by firms, thereby reducing the likelihood of litigation (Marchini P. L., 2021). Furthermore, Comi S. et al. (2020) detected a positive and significant effect of gender quotas on productivity, considering both value added per employee (+4.5%) and total factor productivity (TFP) (+6.2%).

Overall, the implementation of mandatory gender quotas in Italy did not end up in a decline in the qualities of board members, regardless of gender. This conclusion can be assigned, in part, to the fact that the introduction of gender quotas occurred in an environment characterised by skeptical attitudes towards women in top leadership roles.

Even when there were highly talented women available, they were often not considered for managerial positions on corporate boards (Comi S. et al., 2020). The enforcement of gender quotas forced companies to appoint more women to their boards, thus valorising highly qualified women. Furthermore, the limited number of companies targeted by the quotas suggests an abundance of qualified women, surpassing the demand for such positions.

1.3 Paper contributions

This work aims at analysing the gender equality status in the corporate boards of public listed firms and of state-owned firms in the years following the COVID-19 crisis.

Wide and various is the literature about the compliance and the effects of the social policies introduced in the previous decade, but very narrow and limited are the contributions concerning the recovery from the pandemic damages. According to the EU Commission (2022), indeed, the employment rates in 2020 right after the spread of the pandemic decreased for both sexes. However, along the lockdown period, women suffered a steeper reduction in the daily working hours than men. During the summer of 2020, women between the ages of 25 and 49, who were in the childrearing life stage, faced the greatest difficulty in finding employment. As I have previously mentioned, this period is known with the term “She-cession” meaning that women were the most hit by the crisis and therefore needed a public intervention to stimulate the common thought and incentivize an heterogeneous environment.

In this regard, contrary to what Magnanelli B. S. et al. (2017) supported, saying that following the 2011 provision, which was supposed to end in 2022, women by that time would be able to prove their skills, competencies and positive performance and therefore no other law would have been further needed to keep them in boards, the 2011 policy, instead, had to be updated in 2019.

The contributions this paper would give to the literature regard both the control group selected and the magnitude of the gap between women representation before and after the policy that could be responsible for changes in the firms’ proficiency. Concerning the second aspect, previous studies focused on the impact of the Law 120/2011, which produced a significant increase of women representation in leading positions compared to the period pre-reform, when there were almost no women in managerial roles. Therefore, assuming that the effect should be proportional to the gap, I expect the results of those researches to be more significant and remarkable compared to the ones coming from the evaluation of the policy analysed in this project. Here, indeed, the gap in female representation in corporate boards of directors following the enforcement of the law 160/2019 will be smaller. Therefore, the effects could be less evident either because the difference between the 33% quota of the previous policy and the 40% of the current one is narrower, or because there can be companies that already reached and overcame this 2/3 gender ratio before 2019.

Regarding the first aspect, instead, I will not compare through a matching the group of Italian listed firms with another group of similar firms from another country which has introduced another gender quota policy such as Norway, France or Spain, or with another country with no gender equality policies enforced such as Greece. What I will do is to select via matching a sample of Italian firms as much similar

as possible under various parameters with the listed one included in the treatment group. This way, they will differentiate only for the fact of being targeted by the policy, which means of being listed in the Stock market or being owned by state bodies.

In conclusion, related to this latter concept, I will include in my treatment group also the state-owned firms, which means all those companies whose Global Ultimate Owner (GUO) is the State or the Government. This category has not been usually taken into account by the previous authors, who have not distinguished it from all the other not listed firms.

Chapter 2

EMPIRICAL ANALYSIS

2.1 Data and Descriptive analysis

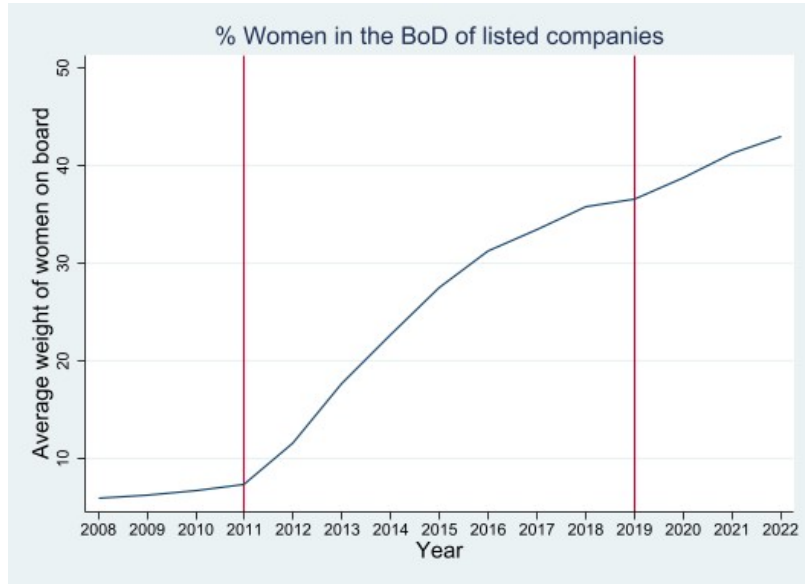
I constructed my dataset by merging various information coming from different national and international databases, in order for the research to be as complete and precise as possible. The first sources consulted were Consob, Istat and Eurostat, where there are public and easily accessible macro data on the status and the composition of Italian companies both listed in the Italian Stock Exchange and not.

Consob (Commissione Nazionale per le Società e la Borsa) is an Italian authority in charge of monitoring the financial markets and the status and behaviour of the Italian listed firms.

Every year, since the enforcement of the 2011 Golfo-Mosca Law on gender quotas in the board of directors of listed and stated-owned companies, Consob publishes a report paired with an excel folder to depict the firms' situation of the previous year in terms of proficiency, stock exchange and board composition. From the last report published the 28th of April 2023 (Report Consob, 2023), I could extract important data on the general trend of the stock market and of the gender equality situation in corporate boards in 2022. On average, indeed, they outlined an evident drop in the number of quoted firms, especially when dealing with foreign investors, but a positive increase of women representation in the boards of directors, reaching an average level of 43% at the end of last year, a record for the national market.

As shown by the graph (Figure 2.1a), immediately after the two thresholds indicating the enforcement of the main Gender Quotas Laws, 120/2011 and 160/2019, the trend depicting the percentage of women in corporate boards of Italian listed companies undergoes a more or less sharp rise overcoming the 40% threshold in 2021, two years after the last social policy.

Figure 2.1. Line graphs on the percentage of women in corporate boards and occupying managerial positions.



(a)



(b)

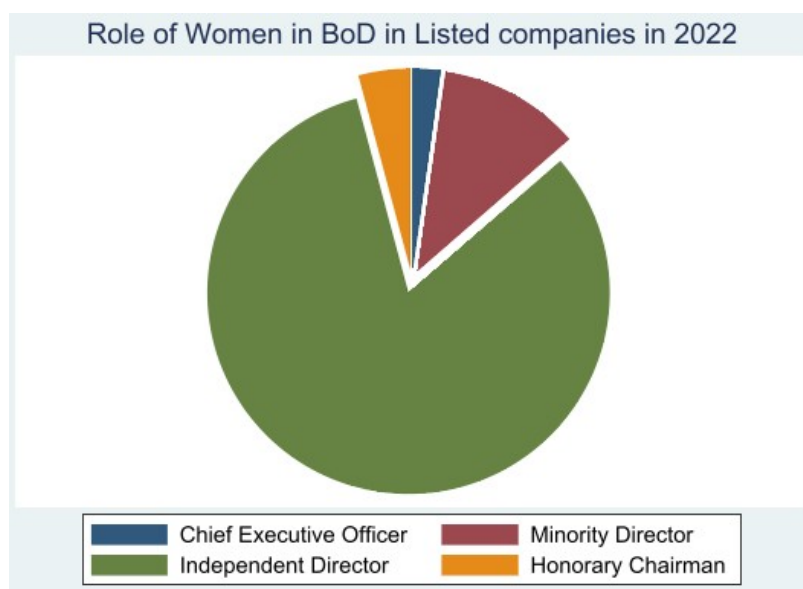
Source: Consob: report on Corporate Governance of Italian Listed Companies 2022

Note: The two reference lines correspond to the years when they introduced the two Gender Quota Laws: 2011 and 2019

However, most of the female figures are stuck in lower positions due to the glass ceiling or sticky floor phenomenon which I have previously explained.

As clearly shown in Figure 2.1b, since the implementation of the first Gender Quota law in 2011, even though the percentage of women on board has increased, the portion of them engaged in managerial positions has been subject to a sharp decrease. The majority of women involved in corporate boards are indeed employed in secondary roles such as Independent Directors or Minority Directors (Figure 2.2), while only a few of them succeed at reaching higher leading positions such as President or Chief Executive Officer (CEO).

Figure 2.2. Pie chart showing the roles of women in the corporate boards.

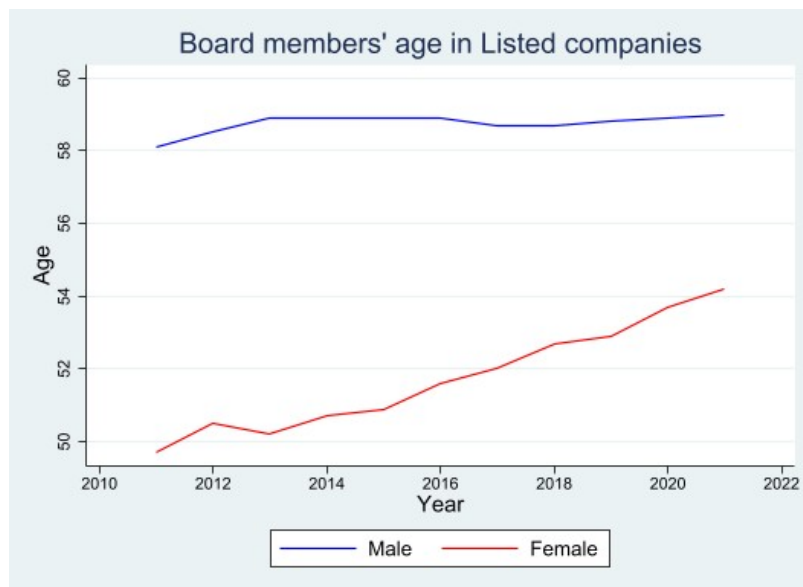


Source: Consob: report on Corporate Governance of Italian Listed Companies 2022

Moreover, going deep into the boards' members' personal characteristics and career's achievements like age, level of education and years of experience in leading positions, the results observed are quite interesting.

On average, quotas are associated with a higher share of older members, regardless of gender, and higher levels of education among board members, as anticipated by Ferrari G. et al. (2016) for the previous policy. These results are mainly driven by the male counterpart. Men, indeed, are usually older and with a constant percentage of graduates which was overcome by the women around 2012, exactly one year after the enforcement of the first law 120/2011 (Figure 2.3a and 2.3b).

Figure 2.3. Line graphs on the age and graduation status of corporate board members.



(a)



(b)

Source: Consob: report on Corporate Governance of Italian Listed Companies 2022

Besides Consob, as previously mentioned, Istat and Eurostat are two other fundamental databases which helped me defining the specific sample for the evaluation of the 2019 Gender Quota policy.

On one hand, ISTAT is the National Institute of Statistics, an Italian public research body that deals with general censuses of the population, services and industry, agriculture, sample surveys on households and general economic surveys at a national level. Consulting ISTAT allowed me to double check the national Stock market and the quotation status of the various companies.

On the other hand, EUROSTAT works basically the same but at the European level. It is therefore a bigger dataset particularly useful when dealing with comparison among different countries with similar backgrounds, as it often happened in the broad literature on this topic.

Then, I collected firm-level outcomes data to be linked to the previous macro information. Following standard literature, such as Ferrari et al. (2018) or Comi S. et al. (2020), I relied on data available from Orbis and AIDA, which are firm-level databases owned by the Bureau van Dijk.

Orbis is the widest available database with detailed and complete information on over 450 million companies and entities worldwide, including 45 million with precise financial information. Moreover, It is the most comprehensive source of comparable data on listed and unlisted companies from around the world.

AIDA, instead, is a detached database focused only on the Italian companies. In order to build the most suitable sample of firms, I selected the following research criteria in the Orbis database:

- Geographic area: Italy
- State: active
- Last year of business balance available: 2022
- Years with business balances available: all the periods between 2014-2022
- Number of employees: minimum number of 50 employees for all the periods between 2014-2022

The reason why I selected all the firms with the least available business balance recorded in 2022 is because in order to see the effects of the 120/2019 law, at least three years of results were needed. Then, another criteria to be respected is the one of having all the business balances along the period 2014-2022 available, to compare the board composition and the proficiency in the years before and after the policy.

Finally, the last criteria about the minimum number of employees was selected first of all because only the companies with more than fifty employees were obliged to annually submit a report on the gender equality status, instead for the smaller firms it was only optional. Then, as Latura A. and Weeks A. (2022) supported, bigger firms are more likely to be in the spotlight and thus subject to scrutiny about whether and how they are respecting the quota law, plus they generally own more resources to introduce new policies and programs.

The finite sample obtained from these selection criteria is composed of 3752 companies in total, regardless of the geographical localization, the sector in which they are classified and of the quotation status.

In the interest of better defining every single observation within the sample I chose the following variables:

- Company Name
- Quoted
- Quotation Status
- Delisting Year
- Nace Code
- Country Region
- Global Ultimate Owner (*GUO*)

Quoted is a dummy variable taking value 1 when the company is listed and 0 otherwise; Quotation Status defines whether a firm is listed, not listed or delisted and for this latter the variable Delisting Year specifies the complete date. The Nace Code, short for "statistical classification of economic activities in the European Communities", is a 4-digit code created in 1970 by Eurostat to systematise and standardise the definitions of economic and industrial activities in the EU member states. The Country Region variable helps to geographically and administratively localise every company's headquarters. Finally, the Global Ultimate Owner is the individual or entity at the top of a corporate ownership structure and it is necessary, together with the quotation status, to define the group targeted by the policy.

For the purpose of studying whether the treated enterprises did or did not comply to the 40% gender quota in the board of directors, the variables indicating the members of the corporate boards to be added to the matrix are:

- Complete Name
- Gender
- Role
- Election Date

The cleaning procedure for these last data was quite complicated. I needed the precise composition of the previous board, the one before the introduction of the policy and of the current board, the one after its enforcement. If for the incumbent board I did not find any particular obstacle unless making sure that the election date was at least after 2019, when selecting the previous board, the problem was that it included the members of all the boards who succeeded in the past few years. This means that if a corporate member was confirmed in two or more consequent board elections, its same name would appear more than once. Therefore, I had to check the election date of the members and keep only the names associated with the latest election.

Finally, since the goal of the analysis is also the one of evaluating whether the increase of female presences in corporate decisional boards has an effect on the efficiency and profitability of the firms, taking into account a standard literature (Ahern K.R. and Dittmar A. K., 2012; Ferrari et al., 2018; Comi S. et al., 2020), I considered the following measures:

- Number of employees
- Total Production Value (*TPV*) - in thousands of euros
- Net Return On Equity (*ROE*)
- Gross Value Added (*GVA*) - in thousands of euros
- Research and development expenditures (*R&D*) -in thousands of euros
- Stock price
- Total Revenues - in thousands of euros

The R&D expenditures, Stock price and Total revenues variables were not taken in consideration further on because there were too many missing values that would have distorted the results.

2.2 Empirical Strategy

The policy evaluated in this paper states that all the companies which are either listed with the Stock Exchange or state-owned must have at least 40% representation of both sexes in their board of directors. Therefore, I proceeded in the following way. First of all, I divided the sample into two groups by constructing an index called T (treatment) to better compare the effects and the consequences of the policy. The dummy variable T will assume value 1 for the treatment group, which is the one composed by listed and state-owned firms and value 0 for the control group which includes all the other cases. Aiming at precisely defining the two groups, I also checked the delisting date of those companies which are no more into the Stock Exchange and I incorporated into the treatment group all the firms which lost their quotation status after 2019.

Then, in order to decide which was the most suitable evaluation method for the policy, I looked at the pre-reform common trend between the two groups of firms. I noticed a relevant heterogeneity especially regarding the number of employees and the total production value, probably due to the fact that listed and state-owned firms are generally bigger and more proficient. Therefore, to reduce the differences in observed pre-reform characteristics between the treatment and the control group, I decided to implement a Propensity Score Matching.

The Propensity Score Matching is a statistical evaluation method that allows to decrease as much as possible the level of heterogeneity, by matching one observation of a group with another one or more than one pertaining to the other comparison group under certain criteria. In particular, I estimated a propensity score for the probability of a firm to be subject to the law based on certain observed attributes. The characteristics chosen to match the various observations are: the total production value, the number of employees, the return on equity and the global value added of the years pre-reform and two time-independent features, the NACE code which indicates the sector and *North*, which is a dummy variable taking value 1 when the company is localised in one of the northern regions of the country and 0 otherwise. Thanks to the Propensity Score Matching method I could shrink my sample obtaining a total of 262 companies, among which 147 in the treatment group and 115 in the control group. Afterwards, once the members of the two groups were correctly matched, confirmed also by the density overlapping of the two groups, I could proceed with the first stage of the analysis.

At the first stage, I studied the compliance to the policy and its effectiveness. I observed whether being assigned to the treatment group would indeed positively influence the percentage of women representatives in the corporate boards, everything weighted by the propensity score. To do so I run the following model:

$$Y_{it} = \beta_1 T + \beta_2 (X_i \cdot Year) + Y_{(it-1)} + u \quad (2.1)$$

Where Y is the percentage of women in board of firm i at time t and $t-1$, which means respectively after and before the implementation of the policy; T is the dummy variable taking value 1 for the treatment group and 0 otherwise; X is a vector including all the variables of proficiency which are interacted with the years pre and post reform. The coefficient of interest is β_1 and I expect it to be positive and significant. The assumption is that being treated by the Gender Quota Law will lead to an increase in the number of women in the corporate boards and, therefore, to a rise in the percentage of female representatives compared to men.

Then I passed to the second stage where I ran a difference-in-difference analysis to study the impact of the treatment on the values of proficiency of the firms. The difference-in-difference evaluation method consists of computing first the difference between the values of interest between the treatment and the control group in the two periods defined by the policy and then subtracting the difference of the pre-reform period to the difference of the post-reform period.

In this case, for the sake of the formula, I introduced a new dummy variable taking value 1 for all the years after the enforcement of the law and 0 for the years before, which I called $Post$. Then I run the following model, once again weighted by the propensity score:

$$Y_{it} = \beta_1 Post + \beta_2 (T \cdot Post) + \gamma X_{it+u} \quad (2.2)$$

Where Y refers to all the variable of proficiency (total production value, number of employees, return on equity and global value added) of firm i at time t , post-reform; $Post$ is a dummy variable for the time; T is the dummy variable for the treatment and X is a vector for all the other variables of proficiency of company i at time t .

The difference-in-difference coefficient is β_2 and it is the one I am interested in.

$$\beta_2 = (Y_{11} - Y_{10}) - (Y_{01} - Y_{00}) \quad (2.3)$$

$$\beta_2 = [Y_{2022} - Y_{2018}]|T = 1 - [Y_{2022} - Y_{2018}]|T = 0 \quad (2.4)$$

The value taken by β_2 and its statistical significance will tell whether the compliance to the 40% quota in the corporate boards for the treatment group improved or worsened the firm's proficiency and efficiency.

2.3 Estimation results

The law 160/2019 supporting gender equality in the decisional committees of the listed and state-owned firms, as its previous version of 2011, has strict consequences in case of non-compliance within a defined limited period of time. The consequences are progressive and they come in the form of a warning at first, then of financial fines up to EUR 1,000,000, to arrive in the extreme case at the invalidation of the appointment of all elected members.

Given that, I suppose that all the companies which have not complied with the policy yet, that means all the firms which still do not have a 40% of female representation in their corporate boards, will do it soon, within the transition period.

A curious phenomenon, already studied by the previous literature, is the delisting of some of the firms at the turn of the policy announcement. I expect that if for some companies the quota was not affordable because it imposed substantial costs of compliance or sacrifices, then they would be the most likely to delist (Ahern K. R. and Dittmar A. K., 2013). Not all delistings, indeed, imply going private, some of them could be also strategic. Therefore, I investigated the likelihood and the reason for delisting in my sample firms.

Among the twenty-one delisted companies, three of them did it in 2018. However, according to Borsa Italiana, a company that manages the Italian financial market, none of them went through it to strategically avoid complying with the policy.

Once checked for this issue, the aim of the research was to study the effectiveness of the policy on the gender equality status of the companies and the effect of this latter on the firms' proficiency indicators.

2.3.1 Propensity Score Matching

First, I had to tackle the problem of heterogeneity between the two groups detected by running the pre-reform common trend, especially regarding the number of employees and the total production value dimensions (??).

The most suitable instrument to overcome this obstacle is the Propensity Score Matching. I ran a Ttest to confirm the heterogeneity, to detect whether the firms have been assigned to the treatment group not randomly (??).

Being T the dummy variable for the treatment and $Percent - WinB - previous$ the variable measuring the percentage of women in corporate board in 2018, the result obtained indicates that the percentage was almost 12 percentage points higher in the treated group than observed among the untreated companies. This result may be biased by confounding factors at the baseline and I tested it by regressing, through a

probit, the treatment variable on the following covariates:

- *LogNemployees* – 2018 : logarithm of the number of employees of the firm in 2018
- *LogTPV* – 2018: logarithm of the total production value in 2018
- *ROE* – 2018: Return on Equity in 2018
- *GVA* – 2018: Global Value Added in 2018
- *CodeSector*: which is the code NACE assigned to each sector of the economy
- *North*: dummy variable taking value 1 when the companies are located in the northern regions and 0 otherwise.

I took the logarithm of both the number of employees and total production value to correct for the outliers.

Table 2.1. Effects of the covariates on the probability of being treated.

Probit regression				Number of obs = 3,405		
				Wald chi2(6) = 153.29		
				Prob > chi2 = 0.0000		
Log pseudolikelihood = -518.9008				Pseudo R2 = 0.1687		
T	Coefficient	Robust std. err.	z	P> z	[95% conf. interval]	
lTPV_2018	.078313	.042092	1.86	0.063	-.0041858	.1608117
ln_Empl_2018	.1803365	.0567196	3.18	0.001	.0691681	.2915049
CodeSector	.0000552	.0000173	3.19	0.001	.0000213	.0000891
North	-.401462	.0877495	-4.58	0.000	-.5734478	-.2294762
ROE_2018	.0000321	.0011323	0.03	0.977	-.0021873	.0022514
GVA_2018	8.87e-07	2.90e-07	3.06	0.002	3.20e-07	1.46e-06
_cons	-3.555101	.3691823	-9.63	0.000	-4.278685	-2.831517

Source: Orbis database

Note: Probit regression with robust standard errors

From Table 2.1 we can see that the probability of being treated is not random, but it is positively and significantly correlated with the number of employees, the sector

and the global value added. The numerical codes of the sector are assigned such that the higher numbers correspond to developed activities and services in the tertiary sector, where it is fair to assume that more firms are listed in the stock market. Furthermore, it is negatively and significantly correlated with the variable North, presumably because lots of state-owned and listed firms have their headquarters in Rome, which is in the southern regions. Finally, there is no statistically significant correlation with the total production value and the return on equity.

Accounting for these imbalances in the distribution of baseline characteristics between the treated and untreated group, the adjusted output is attenuated at almost 5 percentage points of difference (??).

I successfully computed the Matching after the probit regression as it can be seen in Table 2.2 and the relative graphical representation of the propensity score (??).

Table 2.2. Propensity Score Matching

Probit regression	Number of obs = 3,403
	LR chi2(6) = 198.17
	Prob > chi2 = 0.0000
Log likelihood = -518.9008	Pseudo R2 = 0.1603

T	Coefficient	Std. err.	z	P> z	[95% conf. interval]	
lTPV_2018	.078313	.0421694	1.86	0.063	-.0043374	.1609634
lN_Empl_2018	.1803365	.0539557	3.34	0.001	.0745852	.2860877
CodeSector	.0000552	.0000194	2.85	0.004	.0000173	.0000932
North	-.401462	.0891514	-4.50	0.000	-.5761955	-.2267285
ROE_2018	.0000321	.0007935	0.04	0.968	-.0015232	.0015874
GVA_2018	8.87e-07	2.33e-07	3.81	0.000	4.31e-07	1.34e-06
_cons	-3.555101	.3803952	-9.35	0.000	-4.300662	-2.80954

Note: 0 failures and 1 success completely determined.

Variable	Sample	Treated	Controls	Difference	S.E.	T-stat
Percent_WinB_c~t	Unmatched	29.7403628	15.5696811	14.1706817	1.76230931	8.04
	ATT	29.7425743	14.2630628	15.4795115	2.57743845	6.01

Note: S.E. does not take into account that the propensity score is estimated.

psmatch2: Treatment assignment	psmatch2: Common support		Total
	Off suppo	On suppor	
Untreated	0	3,252	3,252
Treated	4	147	151
Total	4	3,399	3,403

Source: Orbis database

Finally, I evaluated and confirmed that the matching was correctly concluded by computing a test (Table 2.3), which revealed values of the % of bias lower than 5 and limited variances of each variable, with the only exception of the return on equity.

I received one more guarantee of comparability between the two matched groups of firms from the overlapping of both their total production value and number of employees density distribution when weighted by the propensity score (?? and ??).

Table 2.3. Propensity Score Test

Variable	Mean			t-test		V(T)/ V(C)
	Treated	Control	%bias	t	p> t	
LN_Empl_2018	6.1774	6.1769	0.0	0.00	0.998	0.93
ITPV_2018	11.774	11.77	0.3	0.02	0.985	0.95
CodeSector	4538.1	4737.7	-9.4	-0.77	0.440	0.69*
North	.62585	.65306	-6.1	-0.48	0.628	.
ROE_2018	7.0201	9.9325	-5.0	-0.42	0.671	2.72*
GVA_2018	2.2e+05	2.2e+05	-0.5	-0.06	0.950	0.91

* if variance ratio outside [0.72; 1.38]

Ps	R2	LR	chi2	p>chi2	MeanBias	MedBias	B	R	%Var
0.003		1.10	0.982		3.5	2.8	12.2	1.01	40

* if B>25%, R outside [0.5; 2]

Source: Orbis database

Note: The %bias is the parameter to take into account when checking for the goodness of the match and the value not to overcome is set at 5

The Propensity Score Matching also allowed me to shrink the sample of reference, eliminating the outliers especially in the control group, which was the largest and the most various one.

2.3.2 First stage

The effectiveness of the policy is measured immediately at the first stage.

Always accounting for the matching and thus weighting every time by the propensity score, I regressed the percentage of women in the corporate board of firm i at time t post-reform (2022), on the dummy variable for the treatment (T), on a series of covariances related to the measures of firm's i proficiency (X) both before and after the implementation of the policy and finally on the percentage of women in corporate board of the same company but at time $t-1$ pre-reform (2018).

$$Y_{it} = \beta_1 T + \beta_2 (X_i \cdot Year) + Y_{(it-1)} + u \quad (2.5)$$

The coefficient of interest is β_1 , which I expected to be positive and significant. The assumption of the model, indeed, is that the fact of being assigned to the treatment, regardless of the pre-reform conditions, should induce every targeted firm to increase the female representation in its board of directors, with the aim of reaching at least the 40% quota established. This tendency can derive both from a remarkable sensitivity to the gender equality theme, given the numerous concerns spread during the last decade, or from the threat of the rigid consequences for non-compliance imposed by the government.

The regression outcome fulfilled the aforementioned expectations.

Table 2.4. Impact of the treatment on the percentage of women in the corporate board

Linear regression		Number of obs	=	265
		F(12, 252)	=	39.25
		Prob > F	=	0.0000
		R-squared	=	0.4437
		Root MSE	=	17.039

Percent_WinB_current	Coefficient	Robust std. err.	t	P> t	[95% conf. interval]	
T	5.743104	2.655969	2.16	0.032	.5123782	10.97383
Tot_BM_current	1.29081	.47034	2.74	0.006	.3645116	2.217108
ln_Empl_2022	.4136683	3.552704	0.12	0.907	-6.583106	7.410442
lTPV_2022	.0247474	3.292364	0.01	0.994	-6.459308	6.508802
ROE_2022	-.0108307	.066769	-0.16	0.871	-.142327	.1206657
GVA_2022	-.0000114	7.04e-06	-1.62	0.107	-.0000253	2.46e-06
Tot_BM_previous	-.4425143	.2664794	-1.66	0.098	-.9673247	.0822962
ln_Empl_2018	1.522525	3.641935	0.42	0.676	-5.649983	8.695033
lTPV_2018	.4907054	3.577494	0.14	0.891	-6.554892	7.536303
ROE_2018	-.0182015	.0195894	-0.93	0.354	-.0567812	.0203783
GVA_2018	.0000117	.0000117	1.00	0.318	-.0000113	.0000347
Percent_WinB_previous	.6538708	.0873739	7.48	0.000	.4817947	.8259468
_cons	-14.13158	9.353695	-1.51	0.132	-32.55295	4.289799

Source: Orbis database

Note: OLS regression weighted by the propensity score values, with robust standard errors

As shown in the table above (Table 2.4), the fact of being subject to the treatment positively and significantly increases the percentage of women in the firm's board of directors by almost 6 percentage points. Additionally, among all the other independent variables, those which have a significant impact on the female representation in the corporate boards of listed and state-owned firms are, logically, the total number of board members and the percentage of women in the previous board composition. Both of them are paired with a positive coefficient, meaning that they both contribute to rising female representation in the new board election.

2.3.3 Second stage: Difference in Difference

At this stage of the analysis, the sample has been well-defined and studied, the treatment has been proven to effectively fulfil the aim of the social policy, the last thing that I wanted to study, following also the stream of the broad literature on this topic

(Ferrari et al, 2016; Maida A. and Weber A., 2019), is if and how a significant rise of female representatives in leading and decisional roles has influenced the proficiency and the strategy of the relative firms.

The best way to evaluate this was through a Difference in Difference approach which would have measured the gap in the indexes pre and post pandemic and between the two groups.

First of all, I properly defined all the variables and interaction variables that would be needed for the analysis. Aside from all the others already existing, I introduced the variable *Post*. *Post* is a time variable and it is a dummy taking value 1 for the period following the introduction of the policy and 0 for the years prior to the reform. Then, I interacted this time variable with the dummy of the treatment *T*, obtaining the following model:

$$Y_{it} = \beta_1 Post + \beta_2 (T \cdot Post) + \gamma X_{it} + u \quad (2.6)$$

Where *Y* is the productivity variable of interest (number of employees, total production value, return on equity or global value added) of company *i* at time *t*; *X* is a vector including all the other proficiency variables related to the firm *i* at time *t* post reform (2022).

The coefficient of interest in this case is β_2 because it identifies the difference in difference estimator taking generally the following form:

$$\beta_2 = (Y_{11} - Y_{10}) - (Y_{01} - Y_{00}) \quad (2.7)$$

The first term is the difference between the parameter *Y* after the reform (*t*=1) and before the reform (*t*=0) in the treatment group (*T*=1); whereas the second term is the same difference but in the control group (*T*=0).

Considering the two period of time 2018, before the policy, and 2022, after the policy, that equation will assume the following form:

$$\beta_2 = [(Y_{2022} - Y_{2018})|T = 1] - [(Y_{2022} - Y_{2018})|T = 0] \quad (2.8)$$

The magnitude, the sign and the significance of the diff-diff coefficient β_2 will tell us whether the gender Quota Law 160/2019 had an indirect impact on the proficiency

and the efficiency of the targeted firms.

As I have mentioned before, a broad literature studied the consequences of the introduction of mandatory gender quotas on the productivity of the companies selected. Since every plausible effect depends on several factors, such as the magnitude of the quota imposed, the type of companies targeted by the policy and the statistical approach chosen by the researcher, the most different outcomes resulted from those studies.

Some of them found a positive relation between the increase of gender quotas in the board of directors and the efficiency or strategy of the company. Marchini P. L. et al. (2021) underline the deeper attention to environmental issues raised right after the implementation of the Italian social policy 120/2011. Moreover, Comi S. et al. (2020) demonstrated a significant positive effect of the quotas on the firms' productivity, concerning both the number of employees and the total factor productivity. On the other hand, Ahern K. R. and Dittmar A. K. (2012), analysing the Norwegian situation, found out that the increase of female representation in leading roles of targeted firms resulted in unfavourable market conditions. What is more, Ferrari et al. (2016) were able to reject the existence of a negative effect of gender quotas (law 120/2011) on the economic performance of Italian listed firms, which is already a crucial concern given the widespread skepticism around the introduction of quotas.

Following the hints of the previous literature, the productivity variables I selected were: the total production value (*TPV*), the number of employees ($N - employees$), the global value added (*GVA*) and the return on equity (*ROE*).

In order to neutralise the outliers that could have spoiled the regression, I took the logarithm of all of them but the return on equity, given that it also presented negative values.

Table 2.5. Effect of the treatment on the productivity variables

	TPV	N_Employees	ROE	GVA
Post	-0.0434 (-0.93)	-0.0531 (-1.22)	1.498 (0.94)	-0.0390 (-1.52)
Treated_post	0.254 (1.60)	0.311* (2.22)	-8.718** (-2.90)	0.227** (2.69)
ln_Empl_2022	0.904*** (36.59)		-10.79*** (-4.48)	0.481*** (24.07)
Return on equity~2022	0.000606 (0.79)	-0.000618 (-1.09)		0.00276*** (4.48)
Gross value added ~o	0.000000189** (2.69)	0.000000362*** (5.10)		
lTPV_2022		0.594*** (27.81)	-8.051*** (-3.64)	0.525*** (28.75)
lGVA_2022			18.23*** (4.30)	
Constant	6.277*** (46.18)	-0.959*** (-4.18)	-21.79* (-2.02)	1.419*** (12.32)
Observations	6564	6564	6544	6544

t statistics in parentheses

* p<0.05, ** p<0.01, *** p<0.001

Source: Orbis database

Note: OLS regression with robust standard error. I weighted the outcomes by the propensity score run above. The values in parentheses represent the t statistics and the asterisks represent the significativity of the coefficients. * p < 0.05, ** p < 0.01, *** p < 0.001. The total number of observations in the *ROE* and *GVA* regressions are fewer compared to the other two because there were more missing values in the dependent variables.

As shown in Table 2.5, the effect of the Italian Gender Quota Law 160/2019 on the proficiency of the targeted companies varies depending on the specific factor taken into consideration.

The difference in difference estimator coefficient β_2 related to the interaction variable $Treatment \cdot Post$ takes different signs and significance values.

The total production value does not seem to be significantly affected by the increase of the gender quotas to 40% (??). This means that a further step towards gender equality and fair opportunities would not damage the productivity of the firms.

This is further confirmed by the outcomes related to the number of employees (??) and the global value added (??), which experience even a positive and significant impact of the policy, +31% and +22.7% respectively (evaluated in logarithmic form). Finally, the only negative and significant result comes from the return on equity (??), registering a decrease of 8 unit points with the introduction of the policy. This result could also be biased by the COVID-19 crisis.

Overall, economic theories forecast a connection between gender quotas and firm performance. However, this relationship is not unambiguously established and varies depending on the specific objectives, preferences and strategies of each firm.

2.4 Cost-Benefit Analysis

Social policies fighting gender discrimination and gender segregation have been introduced worldwide, especially targeting the working environment and the unfair and unequal opportunities to reach high leading positions. Women have always been and still are underrated compared to their male colleagues and this led to the building of a hard to break “glass ceiling” which has often prevented high-skilled women to emerge. Given that it was impossible for a spontaneous switch of mentality to happen, international and national governments put all their efforts and hopes in enforcing gender quotas laws and policies.

However, the costs and benefits of such policies could vary depending on different factors, the specific context, the nature of the policy, the level of implementation.

Concerning the Gender Quota Law 160/2019 introduced by the Italian government in 2020 targeting listed and state-owned firms, a cost-benefit analysis can arise the following issues.

The most “expensive” cost to take into account, in my opinion, is the one related to the skepticism and the opposition. It is extremely costly, indeed, to grow the social awareness, especially within certain segments of the society or organisations, on the gender equality issue and the need for an urgent intervention. Furthermore, there are the unavoidable financial costs which the country must go through to implement and enforce the policy such as funding for training programs, campaigns and support services. Finally, we must also consider some possible short-term negative impacts and challenges on some industries. Certain firms could have difficulties in finding highly qualified or experienced women, producing negative effects of board gender quotas on the companies’ performance and negative stock market reactions (Ahern and Dittmar, 2012).

On the other hand, achieving a more gender-balanced representation can lead to numerous benefits. The collaboration of different backgrounds and the exchange of distinct perspectives and ideas foster innovation and creativity. Moreover, more equal and fair opportunities incentivize workforce participation and productivity, leading to a more varied and skilled workforce and therefore to economic growth. Additionally, effective gender equality policies can contribute to shrinking the gender pay gap, enhancing meritocracy, fairness and equality. Finally, it has a positive organisational and social impact. The promotion of gender equality can lead to higher satisfaction, a wider mindset and a better quality of life both within the working environment and in the public and private sphere.

Overall, it is important to underline that the costs and benefits may not be equally shared across all segments of society and some individuals or groups may experience different consequences. Policymakers, indeed, need to carefully take every possible

scenario into account and aim at creating ad-hoc policies to maximise the benefits while minimising the costs. Additionally, it is demonstrated that the long-term benefits deriving from gender equality policies often outweigh the initial costs, leading to a more inclusive and prosperous society in the future.

2.5 Limits

This project presents some technical limits mainly due to the difficulties of having access to some private and sensitive companies' data and to the short time period passed from the implementation of the evaluated policy.

The Orbis database, from Bureau Van Dijk, which is the database I used the most, does not have registered all the Italian listed firms and for each of them not all the productivity and proficiency information are recorded. In this case, for instance, there was no such information about the stock prices or the research and development expenditures, unless for a few random firms. What is more, the dataset is continuously updated, so the sample of firms responding to the selected criteria could vary from a week to the other. This has slowed my research down and confused some prior results. Furthermore, given that the law was officially enforced and started to be effective from 2020, this evaluation takes only into account the short-term impact on the targeted companies and on the society.

Finally, the outcomes may still be slightly biased by the dramatic COVID-19 crisis which has compromised the stability and productivity of most of the Italian firms, forcing some of them to sell or to close.

Conclusions

Over the last decades, many countries all over the world have introduced laws mandating gender quotas for corporate board membership.

In this paper I have evaluated the latest Italian reform merging firm-level information on board membership and board elections, with detailed productivity and efficiency data from Orbis database.

Overall, there are some Italian listed companies which still need to increase to 40% the gender quota imposed by the law, but this could find a reason in the short period of time passed from the enforcement of the policy. A portion of the treatment group, instead, demonstrated a keen sensitivity in the topic, such that they responded in anticipation of the law and started raising their gender quotas at previous board elections.

However, even though the number of women in corporate boards of listed firms was subject to a sharp increase in the last decade, on the contrary, the percentage of these women promoted to higher leading positions such as managers or CEO significantly dropped during the same time period.

Taking advantage of the board renewals scheduled in 2021 or 2022, I evaluated the effect of the increase in women representation in corporate board of directors on some proficiency and productivity parameters. My results provide an optimistic scenario of the Italian Stock Market condition. The companies treated by the reform, indeed, show a rise in their total number of employees, their global value added and their total production value, among which this latter is not statistically significant.

My results suggest that gender quotas may be a way to exploit abundant unused female talent in a country like Italy which has always been among the less egalitarians, with low female labour force participation, high pay gaps and low social assistance and political efforts towards a more gender equal environment.

In conclusion, although having more women on corporate boards is undeniably useful to face gender equality concerns, my research, together with the previous literature, does not share the idea that gender quotas alone are an effective solution for reducing gender disparities within firms, particularly in Italy, where traditional gender norms and culture are deeply rooted.

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