Do Board Gender Quotas Generate Horizontal Spillovers?

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Using a panel of unlisted Italian banks over the period 2006–2018, we examine the extent to which a law that mandatorily introduced female quotas in the boards of Italian listed companies in 2012 had spillover effects on the boards of unlisted banks, which were not required to comply with the quota. Our results show that both the probability of having at least one woman on the board and the proportion of women on the boards of unlisted banks have been rising significantly after the passing of the law. These findings, which are robust to estimating different specifications and to using different estimation techniques, suggest that the quota law contributed to generating a fairer attitude towards women and, more in general, a change in social norms on gender equality. This may have, in turn, generated isomorphic pressures on unlisted banks, inducing them to mimic the board composition of their listed counterparts.

Introduction

Women are under-represented in several domains worldwide. Economic participation and opportunities represent one of the areas where the gender gap remains the widest (World Economic Forum, 2018). Women have in fact to overcome significant obstacles in reaching managerial or top positions in the workplace, as well as in sitting on boards of directors (Hardoy, Schøne and Østbakken, 2017; Oakley, 2000; Ragins, Townsend and Mattis, 1998).

According to the European Commission (2016): 'Not taking advantage of the skills of highly qualified women constitutes a waste of talent and a loss of economic growth potential'. This is the reason why the issue of female presence in the business sector became part of the political agenda of the European Union (EU), which has introduced various board gender diversity quotas to overcome this market failure. A number of studies have looked at vertical spillover effects of these quotas on gender diversity in management positions below board

level within quota-subjected companies. But do these quotas also have horizontal spillover effects beyond the firms that are obliged to follow them? Horizontal spillovers could take place if the quota laws lead to a change in social norms on gender equality. This change could, in turn, generate positive externalities also on firms that are not subject to the quotas, which may prefer not to keep distant from the new benchmark. To the best of our knowledge, no previous literature has analysed whether, within a single country, board gender quotas result in horizontal spillovers on gender diversity in the boards of companies that are not required to comply with the quotas. In this paper, we fill this gap, focusing on a sample of Italian unlisted banks.

Specifically, we are the first to investigate possible horizontal spillovers that the Golfo-Mosca (GM) law, which mandatorily introduced female quotas in the boards of Italian listed firms in 2012,[1] might have had on the boards of unlisted

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[1]We discuss the GM law in detail later.

companies within the banking sector. The law introduced an exogenous shock in the board composition of listed firms but was mute on the obligations on gender parity for unlisted companies. Yet, the change in social norms on gender equality introduced by the law could have induced unlisted firms to adopt more diverse boards under the effect of normative or mimetic isomorphic pressures (DiMaggio and Powell, 1983, 1991).

We believe it is important to focus on the banking sector for five reasons. First, both at European level and in Italy, the weight of financial services in terms of output reaches around 4% of the gross value added at constant prices of the total economy (De Vita and Magliocco, 2018). Second, interest in the banking system is high because of its special status as a regulated activity (Adams and Mehran, 2003). Third, due to the explicit or implicit safety nets against banks' failure and corporate culture, banks tend to take more risks than other companies (Mateos de Cabo, Gimeno and Nieto, 2012; Nguyen, Nguyen and Sila, 2019). As a result, board failures in financial firms were found to be a major cause of the recent financial crisis (Kirkpatrick, 2009). It is therefore important to pay particular attention to banks' governance in order to prevent them from taking excessive risks. Fourth, the banking sector is ordinarily considered as a labour-intensive industry. Gender diversity issues are therefore particularly relevant within this industry. Fifth, due to the strong masculine culture characterizing the banking sector, women are found to face a double glass ceiling within that sector, meaning that even if they make it to middle management positions, they find it difficult to further advance in their careers (Girardone, Kokas and Wood, 2021). As a result, women are particularly under-represented in banks' boardrooms (Arnaboldi *et al.*, 2021; Cardillo, Onali and Torluccio, 2020).

Italy represents an interesting case study to analyse the effects of gender equality policies for the following two interconnected reasons. First, in the European context, together with France, Italy is the country which experienced the largest increase in female representation in boards as a consequence of the introduction of the female quota legislation. Specifically, the percentage of women in the boardrooms of Italian listed companies has increased from 7.4% in 2011 to 33.5% in 2017 (Cerved, 2018). Second, different from France, Italy was characterized by a particularly low level of gender equality before the introduction of the female quotas. In fact, the presence of women on Italian boards was the second lowest in Europe in 2010. Thus, Italy represents a perfect natural experiment to study the effects of gender equality policies, starting from a context of poor sensitivity to the issue. It is also noteworthy that, together with banks in other Southern European countries, Italian banks were strongly affected by the global financial crisis coupled with the European sovereign debt crisis. This led to a consolidation of the banking sector, considerably reducing the number of banks and introducing significant uncertainty in the system (Albertazzi, Notarpietro and Siviero, 2016; Weber, 2017).[2]

Using a panel of unlisted Italian banks over the period 2006–2018, we find that, following the enactment of the GM law, both the probability of having at least one woman on the board and the proportion of women on the boards have been rising significantly. As unlisted banks had no obligations on gender parity, these horizontal spillovers can be explained considering that the quota law may have enhanced attention towards female competence and may have led to an emulation effect in adopting listed companies' governance best practices. More in general, the GM law may have contributed to a change in social norms on gender equality.

Our paper speaks to the small literature which focuses on vertical spillovers of board quota laws, that is, on the effects of the laws on gender diversity below board level within quota-subjected companies (e.g. Wang and Kelan, 2013 and Bertrand *et al.*, 2019 for Norway; Bennouri, De Amicis and Falconieri, 2020 for various European countries; Maida and Weber, 2022 for Italy). We advance this literature by investigating possible horizontal spillover effects of the GM quota law on the gender diversity of the boards of non-listed Italian banks, which were not required to comply with the quota. Furthermore, by showing that mimetic and normative isomorphism can explain why, when choosing the composition of their boards of directors, Italian unlisted banks mimic listed banks in adopting more diverse boards, our work presents a novel application of the theory of organizational isomorphism (DiMaggio and Powell, 1983, 1991).

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[2]Appendix A discusses the evolution of the European sovereign debt crisis and its effects on the Italian banking sector.

The remainder of the paper is laid out as follows. In the next section, we describe gender quota legislations around the world. We then provide some economic background for our study and highlight our contribution. Next, we outline our theoretical framework and hypotheses, describe our data, present some descriptive statistics and outline our research design. Finally, we describe our results before concluding.

Gender quota legislations around the world

Bearing in mind the general tendency to consider men as better than women in terms of managerial success, feminist theories highlight the need to renew and systematically change the male-dominated organizational structures (Black, 1989; Fischer, Reuber and Dyke, 1993). As a result, women's presence on boards can help to change stereotypes embedded in others' expectations and in individual gender identities. Specifically, feminist theories call for regulatory provisions and quotas to achieve this goal (Aluchna and Krejner-Nowecka, 2016). Norway was the first country to introduce a gender quota law in 2003, imposing that the percentage of each gender on the boards of public listed companies could not be lower than 40%. That threshold had to be reached within 5 years. Non-compliance led to strong penalties such as delisting and fines.

Following the example of Norway, several European countries introduced female quotas in their national legislations. These quotas could be either hard quotas or softer ones, which are not binding but are supposed to act as a stimulus (Mateos de Cabo *et al.*, 2019).[3] Focusing on Italy, the GM law mandatorily imposed a minimum of one-fifth of board seats for each gender to be achieved at the first renewal of the board of all listed companies, and a minimum of one-third in the following two board elections.[4] If a firm did not comply, the regulatory body of the Italian stock exchange (CONSOB) warned the company, which was given 4 months to comply. The warning system contin-

ued, with a fine ranging from a minimum of EUR 100,000 to a maximum of EUR 1,000,000. If the company still failed to comply within the following 3 months, the appointment of every elected board member was invalidated (Ferrari *et al.*, 2021).[5]

Table 1 shows that, as a result of these legislations, the share of women on boards of directors significantly increased over the period 2010–2018, especially in those countries that introduced gender quota laws. The largest percentage point increase was recorded in Italy (+31.9%). By 2018, Italy had achieved a female representation on boards above 36%, eight times larger than the 4.5% share observed in the pre-reform period.

Economic background and contribution

Economic background

A large literature has investigated the extent to which gender quotas are associated with an enhancement of corporate performance and/or firm value, as well as possible mechanisms underpinning the association (e.g. Arnaboldi *et al.*, 2021; Cumming, Leung and Rui, 2015; Jain and Zaman, 2020; Nekhili, Bennouri and Nagati, 2022; Yang *et al.*, 2019). Yet, only a few papers have focused on the effects that board quota laws may have on gender diversity outside of the boards of the companies directly affected by the laws. Most of these studies have looked at vertical spillovers. These are the effects of the quota laws on gender diversity in management positions below board level in the companies affected by the quota. Wang and Kelan (2013) find a positive association between the Norwegian quota and women's access to CEO positions. Although they do not focus on a specific board gender quota law, Matsa and Miller (2011) also find that an increase in the share of women on the corporate boards of US companies leads to a subsequent increase in the share of women in top management positions in the same companies. Yet, more recent research did not find evidence of vertical spillovers. Specifically, Bertrand *et al.* (2019) also study the Norwegian reform and find no robust evidence to support the idea that a greater share of female directors leads to more women in the 'top echelons' of quota-subjected companies. Similarly, focusing on Italy, France and the United

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[3]See Table 1 for details.
[4]Directors' mandates in Italy are generally for a 3-year period. The provision made by the GM law was temporary, as the quota regulation was only binding for three board appointments.

[5]Most companies complied with the law (Maida and Weber, 2022).

Table 1. Share of women on boards in EU countries

Country	2010	2012	2014	2016	2018	Δ2018–2010
Countries with gender quota legislation in place						
France[a]	12.3	25.1	32.4	41.2	43.9	31.6
Italy[b]	4.5	10.8	24.1	32.3	36.4	31.9
Germany[c]	12.6	17.9	24.4	29.5	33.8	21.2
Belgium[d]	10.5	12.9	22.4	28.6	32.0	21.5
Netherlands[e]	14.9	21.5	24.9	27.5	30.7	15.8
Spain[f]	9.5	12.3	16.9	20.3	23.7	14.2
Austria[g]	8.7	11.9	17.1	18.1	26.1	17.4
Greece[h]	6.2	7.9	8.9	9.1	9.1	2.9
Average	**9.9**	**15.0**	**21.4**	**25.8**	**29.5**	**19.6**
Countries without gender quota legislation in place						
Finland	25.9	28.6	29.2	30.1	34.5	8.6
Denmark	17.7	20.8	24	27.1	27.7	10.0
Latvia	23.5	28.2	31.7	28.5	29.0	5.5
Slovenia	9.8	18.7	19.9	24.8	27.9	18.1
Poland	11.6	11.8	14.6	18.8	21.0	9.4
Ireland	8.4	8.7	10.9	16.5	18.7	10.3
Portugal	5.4	7.4	9.5	14.3	21.6	16.2
Slovak Republic	21.6	13.8	18.2	12.5	24.1	2.5
Czech Republic	12.2	16.4	3.5	10.1	13.8	1.6
Hungary	13.6	7.4	11.8	12.3	14.9	1.3
Lithuania	13.1	17.8	16.5	14.3	10.8	-2.3
Luxembourg	3.5	9.7	11.7	12.9	13.3	9.8
Estonia	7	7.8	7.1	8.8	8.0	1.0
Sweden	26.4	25.5	27.6	36.9	36.1	9.7
Average	**14.3**	**15.9**	**16.9**	**19.1**	**21.5**	**7.3**

[a] From 2011. Minimum quota of 40% to be achieved by 2017.
[b] From 2012. Minimum quota of 25% to be achieved at the first renewal of the board and 33% in the following two board elections.
[c] From 2015. Minimum quota of 30%. Only applicable to 110 largest listed companies.
[d] From 2011. Minimum quota of 33% to be achieved by 2017.
[e] From 2011. Target of 30% until 2016.
[f] From 2007. Minimum quota of 40% to be achieved by 2015.
[g] From 2011. Minimum quota of 35% to be achieved by 2018.
[h] From 2000. Minimum quota of 33%.
Source: European Commission (2016, pp. 7–8) and European Institute for Gender Equality (2021).

Kingdom, Bennouri, De Amicis and Falconieri (2020) find that both mandatory and advisory quotas did not translate into more appointments of female executives and/or chairwomen in the quota-subjected firms. Maida and Weber (2022) investigate whether the board gender quota set by the GM law had spillover effects on the gender of employees in top management positions of the companies affected by the quota. They find no evidence of an increase in the share of women at the top executive level or among top earners.

Ahern and Dittmar (2012) document a different type of spillover. They argue that, after the promulgation of the Norwegian quota law in 2003, firms in Denmark, Finland and Sweden with fewer female board members in 2002 increased the female representation on their boards. They explain

this finding, arguing that these companies may have responded to the Norwegian quota in anticipation of a similar quota in their own country. Yet, these results are not the focus of their study. They are just aimed at testing the validity of the instruments (time dummies interacted with percentage of female directors in 2002) for the percentage of female directors in a model explaining the industry-adjusted Tobin Q in Scandinavian countries other than Norway, which they use as a placebo test.

Contribution

With the exception of Ahern and Dittmar (2012), who only tangentially look at whether gender quotas have horizontal spillovers on the boards of

companies that are not required to comply with the quotas, to the best of our knowledge, no previous study has explored horizontal spillover effects of quota rules. Moreover, no study has looked at this issue within a single country and/or within the banking industry. Our paper fills these gaps in the literature by looking, for the first time, at the effects of gender quotas stemming from the GM law on the Italian banking industry. Specifically, we investigate the extent to which there is a horizontal spillover effect of the GM law on the gender diversity of the boards of unlisted banks which were not obliged by the law to follow the quota.

Theoretical framework and hypotheses development

The theory of institutional isomorphism

Neo-institutional theory defines 'legitimacy' as 'the degree of cultural support for an organization' (Meyer and Scott, 1983, p. 201). With reference to banks, which face periodic scrutiny from regulators and have a high degree of public trust, legitimacy can be seen as endorsement by regulatory agents and/or the public (Deephouse, 1996). Engaging in legitimacy-seeking behaviour is important to ensure the organization is accepted by its external environment and is key to ensure its survival (Sonpar, Pazzaglia and Kornijenko, 2010). One way to gain legitimacy is to conform to isomorphic pressures arising from external institutions (DiMaggio and Powell, 1983, 1991).

According to the theory of institutional isomorphism (DiMaggio and Powell, 1983, 1991), companies and, in our case, banks could be pushed into isomorphism by three types of institutional mechanisms: coercive, normative and mimetic.[6] Coercive isomorphism comes from the rules and laws that need to be followed by organizations. Firms conform to regulations imposed by the state or the norms of society at large. It can be argued that listed Italian banks appoint more diverse boards as a result of coercive isomorphism, as this behaviour is dictated by the GM law. Yet, coercive isomorphism does not apply to unlisted banks, as these are not subject to the quotas postulated by the GM law.

Normative isomorphism refers to a situation whereby organizations are subject to normative pressure, which emerges from the diffusion in professional business circles of norms, values, assumptions and beliefs regarding business behaviour. This will induce them to implement best practice. For instance, the introduction of mandatory regulations on board quotas can change social norms on gender equality in the business environment, thus generating a widespread fairer attitude towards women's appreciation and promotion.[7]

In our context it is possible that, following the enactment of the GM law, new norms and values, such as an increased gender diversity and equality, became sacred in professional business circles. Hence, unlisted banks are likely to feel morally compelled to change their board composition to meet these new norms and values in order to gain a higher level of acceptance from external stakeholders, that is, a higher degree of legitimacy. In other words, it is likely that the gender diversification of boards among unlisted Italian banks takes place through normative isomorphism, whereby banks abandon a socially accepted practice (having male-dominated boards) and replace it with a new practice that becomes the norm in professional business circles (more gender-diverse boards). As a result, by generating positive horizontal spillover effects on the gender diversity of the boards of organizations not subject to the quota through normative isomorphic pressures, the effect of the quotas expands beyond the territory imposed by the law.

Mimetic isomorphism can be seen as a situation where organizations mimic others in times of uncertainty. In our context, given the uncertainties about the future caused by the financial crisis and the European sovereign debt crisis (which had a particularly significant impact on banks in

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[6]Isomorphism occurs when organizations adopt similar structures, strategies and processes (Deephouse, 1996; DiMaggio and Powell, 1983).

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[7]The fact that, following the introduction of mandatory board quotas, an increased gender diversity in companies' boards of directors becomes sacred in professional business circles can also be justified in the light of feminist theories (Black, 1989; Fischer, Reuber and Dyke, 1993). These theories posit in fact that gender diversification of boards is beneficial and can be achieved by convincing individual members of the field to abandon the socially accepted practice of having male-dominated boards and replace it with the new practice of having diversified boards. The new practice then becomes widespread through corporate networks (Aluchna and Krejner-Nowecka, 2016; den Hond and de Bakker, 2007).

Southern Europe), unlisted banks may be induced to copy those elements that are considered as legitimate, successful or power generating among listed banks. Specifically, mimetic isomorphism could prompt unlisted banks to imitate the board structures of their listed peers. Unlisted banks who wish to list going forward may be particularly affected by this type of isomorphism.

Hypotheses

Focusing on Italian banks, we expect the change in social norms on gender equality resulting from the GM legislation to lead, through normative isomorphic pressures, to a widespread and persistent trend towards more gender balance in corporate boards after the GM law came into effect. Additionally, we expect unlisted banks to copy those elements that are considered as legitimate, successful or power generating among listed banks. A more diverse board may be one such element. In summary, normative and mimetic isomorphic pressures may induce unlisted Italian banks who were not directly affected by the quota to adopt more diverse boards. We therefore propose the following two hypotheses:

H1: Italian unlisted banks show a higher probability of having at least one woman on the board following the promulgation of the GM law. This effect is persistent.

H2: Italian unlisted banks show a higher proportion of women on their boards following the promulgation of the GM law. This effect is persistent.

Data and preliminary evidence

Dataset

Our dataset consists of a panel of all Italian non-cooperative unlisted banks operating continuously over the period 2006–2018.[8] It is compiled from two main sources. First, we hand-collected information on board members from the Chamber of Commerce Infocamere database.[9] Second, we obtained annual bank-specific accounting data from

the Italian Banking Association (ABI Banking Data).

We exclude cooperative banks because their decision process in general and the selection of board members in particular are dictated by local communities, where politics has a strong influence (Groeneveld, 2011).[10] In fact, Italian cooperative banks express a peculiar sort of mutualistic capitalism whereby the shareholders are required to live in the local territory where the credit institution operates.[11] As a result, the strong relationship between the bank, the shareholders and the territory will naturally bear on the selection process of management and directors (Jassaud, 2014; Stefancic, 2011).[12]

We start the construction of our dataset by selecting the universe of all non-cooperative banks operating in Italy over the period 2006–2018. There are 321 such banks. We then omit 13 banks with missing accounting or governance information. As our focus is on the potential spillover effect of the GM law to unlisted banks, we further exclude 24 listed banks.

We then omit 154 banks that ceased operation before 2018. These include two types of banks: banks liquidated due to bankruptcy and banks that were merged into another institution.[13] Wilson and Altanlar (2009) show that the probability of default is lower for UK firms led by female directors. As this argument is also likely to apply to banks, keeping banks that went bankrupt at some point over the sample period would lead to an increasing average presence of women on boards

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[8]This time period enables us to have an equal number of years before and after the passing of the GM law.

[9]Specifically, we used the Historical Information Sheet (Fascicolo Storico) available for each company (including banks) within the Infocamere database, which contains,

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among other information, a track record of all changes in the board of directors and basic demographic information on each board member. For further information, see https://www.registroimprese.it.

[10]Cooperative banks only account for 7.5% of the loans granted by the Italian banking system (European Association of Cooperative Banks, 2020).

[11]The minimum number of shareholders is 500 and each of them counts for one vote, whatever the number of shares owned. For more details, see Article 34 of Law No. 385, promulgated in 1993 and also known as the 'Testo Unico Bancario', which is the legal framework governing the Italian banking sector.

[12]It is common to exclude stakeholder-based financial institutions such as cooperative/savings banks when investigating the gender diversity of corporate boards in EU countries (Mateos de Cabo, Gimeno and Nieto, 2012).

[13]As discussed in Appendix A, a major consolidation wave took place in the Italian financial sector during our sample period.

over the years, which could blur the effects of the GM legislation.

As for the banks in the process of being consolidated, they are excluded as they may have started adopting more gender equality within their boards in anticipation of the merger, and not as a result of the GM law. In line with this argument, many consolidated banks in our sample were already part of a larger listed group even before the actual merger. They therefore had a restricted board with a composition partly overlapping and strongly influenced by the parent company.

Finally, in order to highlight the effect of the gender quota legislation, we need to observe banks that were active over the entire sample period, both before and after the reform. Consequently, we exclude 27 banks that were born sometime during the 2006–2018 period. This yields a final sample of 103 Italian non-cooperative unlisted banks, corresponding to 1093 bank-year observations.[14] In order to limit the impact of potential outliers, we winsorize all continuous variables at the 1% level.

In a nutshell, restricting our sample to 'stable banks' which are active during the entire period enables us to isolate the specific effect of the gender quota legislation on the behaviour of banks when selecting their board of directors. Nevertheless, we later verify whether our results are robust to using the full unbalanced panel of 258 unlisted banks.[15]

Descriptive statistics

Descriptive statistics and definitions of our main variables are presented in Table 2. The proportion

[14]Although this may look like a small sample, small samples are common in the literature on banks' governance. For instance, Cardillo, Onali and Torluccio (2020) use a sample of 105 banks over 15 EU countries to study the impact of gender diversity on bank boards on the probability and size of public bailouts. Similarly, Arnaboldi et al. (2020) examine a sample of 77 listed banks across 20 countries to assess how heterogeneity in boards affects the performance of banks in the EU. Finally, Arnaboldi et al. (2021) and Casu et al. (2022) use a sample of 83 banks from 21 EU countries to respectively investigate how board diversity affects bank misconduct, and boards' decision to fire the CEO in the presence of misconduct.

[15]In this case, from the 321 banks operating over the period 2006–2018, we only drop 13 banks with missing accounting/governance information, 24 listed banks and 26 banks without the four consecutive years of accounting data necessary to construct the lagged standard deviation of the ROA. This leads to the 258 banks making up the full unbalanced panel.

Table 2. Definitions of variables and descriptive statistics

Variable name	Variable definition	Obs.	Mean	SD	Min	Max
Womperc	Ratio of female directors to the total number of directors sitting on the board	1093	0.079	0.106	0.000	0.400
Womdummy	Dummy variable equal to 1 if there is at least one female director on the board, and 0 otherwise	1093	0.498	0.500	0.000	1.000
Assets	Total assets (millions of euros)	1093	7006.5	16,631.9	12.09	165,134.3
Size	Natural logarithm of total assets	1093	6.299	0.706	4.08	8.22
Capitalization	Ratio of total equity to total assets	1093	0.106	0.092	0.019	0.97
Loan ratio	Ratio of gross loans to total assets	1093	0.576	0.253	0.003	0.99
ROA	Ratio of net income to total assets	1093	0.001	0.016	−0.095	0.18
Std. ROA	Standard deviation of ROA	1093	0.006	0.022	0.000	0.35
Efficiency	Ratio of costs incurred in running the bank to income generated before provisions	1093	0.702	0.438	0.157	3.69
Growth total assets	Growth rate of total assets	1093	0.084	0.277	−0.955	1.91
Number of directors	Number of directors sitting on the board	1093	10.375	3.198	4	19

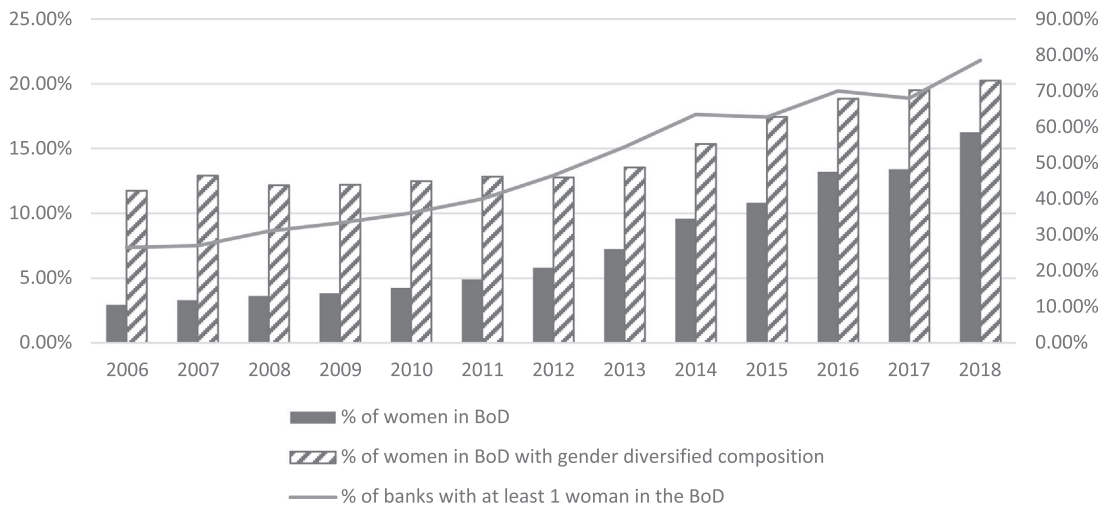Source: Authors' calculations based on the main dataset.

Figure 1. Female presence on boards of directors (BoD)
Note: The left axis measures the percentage of women on boards of directors. The right axis measures the proportion of banks with at least one female director.
Source: Authors' calculations based on the main dataset.

of women on the boards of directors of the banks in our sample ranges from 0 to 40%, with an average value of 7.9%. The percentage of observations with at least one female director is just under 50%. These figures point out a remarkably low gender diversity on the boards of unlisted Italian banks, especially if compared with the average percentage of women on the boards of European listed banks (12%) and the corresponding presence of at least one female director (82% of the observations) reported in Arnaboldi *et al.* (2020).

The banks in our sample are well capitalized, with an average value of the equity to total asset ratio of 10.6%. Their profitability is low: their average return on assets (ROA) is in fact only 0.1%. Loans to customers represent on average 57.6% of their total assets. Their average board size is 10.4 and ranges from 4 to 19 directors.

Preliminary evidence on the effects of the GM law

Figure 1 depicts the evolution of female presence on the board of directors of the banks in our sample. The grey line shows that the percentage of banks having at least one woman on the board has been increasing steadily, from around 29% in 2006 to more than 70% by 2018. The black histogram is the average proportion of women out of the total number of board members computed on the entire sample, whereas the striped histogram is the same proportion computed on the subsample of banks

having at least one woman on the board. Both the grey line and the histograms exhibit a continuous increase during the sample period. By comparing the black and striped histograms, we see that the overall increase in female presence is mainly driven by the increasing number of banks deciding to include at least one woman on the board rather than from a greater proportion of women in already gender-diversified boards. Furthermore, both histograms show an acceleration of the process after 2012, which is the year in which the GM law was promulgated.

Table 3 further explores the size of boards and the presence of female directors. The average number of board members ranges between 9.43 and 11. The average percentage of females on boards was 4.1% before 2012 and increased above 10% after 2012. For the subsample of banks already having a female presence among the directors, the percentage of females on the board remains stable up to 2011 and increases steadily thereafter. This suggests that even once the glass ceiling is broken and the board already includes one or more women, additional policy interventions increasing the cultural awareness about gender equality may help to further foster female participation in boards.

Table 4 shows the evolution of new appointments to the boards. On average, banks appointed 22 women per year to their boards over the period

Table 3. Board size and percentage of women on boards

	Board size	% Women	% Women (where present)
2006	10.79	2.93%	11.74%
2007	10.97	3.29%	12.90%
2008	10.97	3.61%	12.15%
2009	10.88	3.83%	12.20%
2010	11.00	4.25%	12.48%
2011	10.90	4.90%	12.84%
2012	10.43	5.80%	12.76%
2013	10.39	7.25%	13.54%
2014	10.09	9.58%	15.36%
2015	9.75	10.82%	17.45%
2016	9.72	13.21%	18.84%
2017	9.52	13.40%	19.51%
2018	9.43	16.25%	20.25%
Average before 2012	10.85	4.09%	12.44%
Average from 2012 onwards	9.91	10.90%	16.81%

Source: Authors' calculations based on the main dataset.

Table 4. New appointments

	New appointments: Total	New appointments: Women	New appointments: Men	New appointments: Women %
2006	382	19	363	4.97%
2007	455	15	440	3.30%
2008	299	20	279	6.69%
2009	346	29	317	8.38%
2010	324	22	302	6.79%
2011	307	29	278	9.45%
2012	340	50	290	14.71%
2013	372	67	305	18.01%
2014	335	71	264	21.19%
2015	298	51	247	17.11%
2016	302	78	224	25.83%
2017	190	41	149	21.58%
2018	247	62	185	25.10%

Source: Authors' calculations based on the main dataset.

2006–2011. Then, in 2012, the figure jumped to 50 and remained at that level or higher thereafter.[16] We also observe that the percentage of women among all new appointments shows a jump in 2012 and keeps rising thereafter.

These statistics provide preliminary evidence that the GM law affected the presence of women on the boards of unlisted Italian banks even though these banks were not obliged to apply gen-

der quotas. We next provide more formal evidence about these trends.

Empirical strategy

To formally test our hypotheses, we use two dependent variables: a dummy equal to 1 when there is at least one woman on the board, and 0 otherwise (womdummy); and the proportion of women on the board (womperc). Our econometric model follows Mateos de Cabo, Gimeno and Nieto (2012) in considering several potential bank-specific determinants of board gender diversity and takes the

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[16]2017 is an exception as only 41 women were appointed, probably because there were only 190 new appointments in that year.

Table 5. Baseline regressions

	(1) Womdummy	(2) Womperc
year 2008	0.047	0.006
	(0.028)	(0.003)
year 2009	0.050	0.007
	(0.041)	(0.005)
year 2010	0.050	0.006
	(0.051)	(0.007)
year 2011	0.096	0.013
	(0.060)	(0.008)
year 2012	0.175**	0.023**
	(0.063)	(0.008)
year 2013	0.250***	0.039***
	(0.067)	(0.010)
year 2014	0.354***	0.059***
	(0.068)	(0.012)
year 2015	0.373***	0.075***
	(0.073)	(0.013)
year 2016	0.451***	0.097***
	(0.077)	(0.016)
year 2017	0.439***	0.101***
	(0.085)	(0.018)
year 2018	0.513***	0.122***
	(0.087)	(0.018)
$Size_{t-1}$	0.040	0.001
	(0.151)	(0.030)
$Capitalization_{t-1}$	−0.278	−0.063
	(0.363)	(0.081)
$Loan\ ratio_{t-1}$	0.206	0.036
	(0.191)	(0.036)
ROA_{t-1}	1.212	0.184
	(1.166)	(0.234)
$Std.\ ROA_{t-1}$	−0.438	−0.215
	(0.791)	(0.171)
$Efficiency_{t-1}$	−0.004	0.003
	(0.056)	(0.016)
$Growth\ total\ assets_{t-1}$	−0.039	−0.012
	(0.049)	(0.014)
$Number\ of\ directors_{t-1}$	0.046	0.001
	(0.059)	(0.011)
$Number\ of\ directors\ squared_{t-1}$	−0.002	−0.000
	(0.003)	(0.000)
Observations	1093	1093
Adjusted R^2	0.210	0.321

Note: This table reports estimates of Equation (1) obtained using a fixed-effects estimator. In column 1, the dependent variable is a dummy variable equal to 1 if there is at least one woman on the board, and 0 otherwise; whilst in column 2, it is the percentage of women on the board. Standard errors clustered at the bank level are in parentheses. See Table 2 for definitions of all variables. * Denotes significance at the 5% level, ** denotes significance at the 1% level and *** denotes significance at the 0.1% level.

following form:

$$
\begin{aligned}
Womdummy_{i,t}\ &or\ Womperc_{i,t} \\
&= \gamma + \Sigma_t \alpha_t Year_t \\
&+ \beta_1 Size_{i,t-1} + \beta_2 Capitalization_{i,t-1} \\
&+ \beta_3 Loan\ ratio_{i,t-1} + \beta_4 ROA_{i,t-1} + \beta_5 Std.ROA_{i,t-1} \\
&+ \beta_6 Efficiency_{i,t-1} + \beta_7 Growth\ total\ assets_{i,t-1} \\
&+ \beta_8 Number\ of\ directors_{i,t-1} \\
&+ \beta_9 Number\ of\ directors^2_{i,t-1} + n_i + \varepsilon_{i,t}
\end{aligned}
$$
(1)

where i denotes the bank and t time. $Year_t$ is a dummy equal to 1 for year t, and 0 otherwise, where years range from 2008 to 2018.[17] The year dummies are our main variables of interest. If the hypothesized horizontal spillover effects take place immediately after the promulgation of the GM law, then we would expect the coefficients associated with the 2008–2011 fixed effects to be insignificant and those associated with the 2012–2018 dummies to be positive and statistically significant. Yet, as listed banks were only expected to fulfil the quota at the first board renewal and considering that it may take time for unlisted banks to change the composition of their boards, a horizontal spillover effect taking place with a lag would also be consistent with our hypotheses.[18]

Although our variables of interest are the year dummies, it is also important to control for other potential drivers of board gender diversity. Failing to do so could lead to biased coefficients on the year dummies due to omitted variable bias. Following Mateos de Cabo, Gimeno and Nieto (2012), we therefore control for the following bank characteristics: size, capitalization, loans to asset ratio, ROA and its standard deviation, efficiency, assets growth, board size and its square. These variables and their expected signs are respectively described in Table 2 and Appendix Table B1. With the exception of the year dummies, our right-hand side variables are lagged once to avoid endogeneity concerns.[19]

The error term in Equation (1) contains both a bank fixed effect – n_i – and an idiosyncratic error term – $\varepsilon_{i,t}$. n_i embraces all time-invariant bank characteristics likely to influence womdummy and womperc, as well as any additive measurement

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[17] 2006 is used to construct regressors' lags. 2007 is the baseline year.

[18] This point is discussed in more detail later.

[19] Appendix C shows that our results are robust to controlling for endogeneity more rigorously.

errors. We take it into account by estimating our models using a fixed-effects estimator. We cluster the standard errors at the bank level to account for possible serial correlation in errors over time within banks.

Initial results

Table 5 presents the estimates of Equation (1). In column 1, the dependent variable is womdummy; while in column 2, it is womperc. The results show positive and significant coefficients associated with the dummies for years 2012 and later. By contrast, we observe insignificant coefficients associated with the year dummies prior to 2012. Specifically, the probability of having at least one woman on the board is 17.5 percentage points (pp) higher in 2012 compared to the baseline year (2007), with corresponding figures from 2013 to 2018 respectively equal to 25.0, 35.4, 37.3, 45.1, 43.9 and 51.3 pp (column 1). Similarly, compared to 2007, the share of women on boards is 2.3 pp higher in 2012, with corresponding figures from 2013 to 2018 respectively equal to 3.9, 5.9, 7.5, 9.7, 10.1 and 12.2 pp (column 2).

These findings, which support H1 and H2, may be explained bearing in mind that the change in social norms on gender equality resulting from the GM law may have led, through normative isomorphic pressures, to a widespread and persistent trend towards more gender balance in corporate boards. Additionally, in a situation characterized by generalized uncertainty, unlisted banks may have decided to copy listed banks' board composition as a result of mimetic isomorphism.

The bank-specific control variables do not show any significant coefficients, suggesting that the increasing gender diversity is not driven by specific needs related to performance, risk preference or other banks' characteristics.

Our results so far indicate that although board gender quotas in Italy are not found to have vertical spillovers on executive positions within firms (Maida and Weber, 2022), they prompt horizontal spillovers on the boards of unlisted banks that are not subject to the quota. This can be a consequence of the quota regulation generating an emulation effect in adopting listed companies' governance best practices, an enhanced attention towards female competence and/or a widespread fairer attitude towards women.

Further tests

Using different estimation techniques

Given the dichotomous nature of womdummy, in Appendix C we show that the results presented in column 1 of Table 5 are robust to using a random-effects probit model and a fixed-effects logit model (Chamberlain, 1980). Furthermore, considering that some of our explanatory variables are likely to be endogenous, we also show that our results hold when using a system generalized method of moments estimator (Blundell and Bond, 1998).

Estimating different specifications

Appendix D presents and discusses results based on the estimation of a modified version of Equation (1) where the year dummies are replaced with a trend. Results including the average post-reform effect together with the year dummies are discussed in Appendix E.

Next, in Appendix F, we replace our dependent variable in Equation (1) in turn with a dummy equal to 1 if the board comprises at least three women, and 0 otherwise; and a dummy equal to 1 if the proportion of women on the board is at least 30%, and 0 otherwise. The aim of this exercise is to provide a test of the critical mass theory (Kanter, 1977).

The role of omitted macroeconomic variables and business cycle effects

We next investigate whether the positive and significant coefficients associated with the 2012–2018 year dummies that we observed in Table 5 might capture omitted macroeconomic variables and/or business cycle effects rather than horizontal spillover effects of the GM law.[20]

To this end, we first verify whether our findings are robust to including in Equation (1) the following three time-varying regional-level variables: real GDP, birth rate per 1000 inhabitants and percentage of women who graduated from univer-

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[20] According to Sun, Zhu and Ye (2015), firms in China were more likely to hire female directors during an economic crisis than during an economic prosperity stage. If a similar argument applies to Italian banks, then some of the positive coefficients that we found on the year dummies in Table 5 may be driven by macroeconomic shocks resulting from the financial crisis and/or the European sovereign debt crisis rather than the GM law.

sity. The results, which are presented in Appendix Table G1, show that the coefficients associated with the new variables are not statistically significant, whilst those associated with the year dummies remain unchanged. This suggests that our previous findings were not driven by the omission of these macroeconomic variables.[21]

Yet, our results may still suffer from bias due to the omission of region-specific time-varying variables other than those discussed above. To take this into account, we next include in Equation (1) regional dummies interacted with year dummies, which capture all time-variant regional characteristics (e.g. wage equality or time-varying region-specific policies and laws). Considering that, in the Italian context, the effect of macroeconomic shocks has been found to be very different across regions (Lagravinese, 2015), the regional time fixed effects are also likely to capture business cycle effects. In summary, the inclusion of these high-dimension fixed effects rules out any coincidental differences between regions over time from driving our main findings.

The results are reported in Table 6. In column 1, the dependent variable is womdummy; while in column 2, it is womperc. As 15 Italian regions are covered in the dataset, around 160 interaction terms are included, but their coefficients are not reported for brevity. It is noteworthy that several of these coefficients are statistically significant, suggesting that regional factors may have driven unlisted banks' board composition over time. In line with H1 and H2, both columns show that the coefficients associated with the 2008–2012 year dummies are not statistically significant, whilst those associated with the 2014–2018 year dummies are all positive and highly significant. The coefficient associated with the 2013 fixed effect is not significant in column 1 and significant at the 10% level in column 2. Specifically, relative to 2007, the probability of having at least one woman on the board was 30.0 pp higher in 2014. The figure then constantly rises, reaching 62.5 pp in 2018 (column 1). Similarly, the percentage of women on the board was 4.3 pp higher in 2013 compared to 2007. Corresponding figures in the subsequent years are 7.8 pp in 2014, 8.1 pp in 2015, 11.8 pp in 2016, 11.5 pp in 2017 and 13.4 pp in 2018 (column 2).

Table 6. Baseline regressions augmented with regional dummies interacted with year dummies

	(1) Womdummy	(2) Womperc
year 2008	0.008	0.004
	(0.045)	(0.009)
year 2009	−0.001	0.003
	(0.049)	(0.010)
year 2010	0.093	0.015
	(0.108)	(0.017)
year 2011	0.090	0.014
	(0.110)	(0.018)
year 2012	0.091	0.030
	(0.112)	(0.021)
year 2013	0.101	0.043
	(0.113)	(0.025)
year 2014	0.300*	0.078*
	(0.146)	(0.033)
year 2015	0.323*	0.081**
	(0.146)	(0.028)
year 2016	0.559**	0.118**
	(0.168)	(0.039)
year 2017	0.561**	0.115**
	(0.179)	(0.040)
year 2018	0.625***	0.134**
	(0.175)	(0.043)
$Size_{t-1}$	0.094	0.001
	(0.167)	(0.034)
$Capitalization_{t-1}$	−0.207	−0.093
	(0.424)	(0.090)
$Loan\ ratio_{t-1}$	0.213	0.030
	(0.219)	(0.039)
ROA_{t-1}	1.326	0.055
	(1.334)	(0.227)
$Std.\ ROA_{t-1}$	−0.748	−0.284
	(0.978)	(0.163)
$Efficiency_{t-1}$	−0.023	0.001
	(0.066)	(0.018)
$Growth\ total\ assets_{t-1}$	−0.072	−0.014
	(0.056)	(0.015)
$Number\ of\ directors_{t-1}$	0.039	−0.002
	(0.066)	(0.012)
$Number\ of\ directors\ squared_{t-1}$	−0.001	0.000
	(0.003)	(0.001)
Observations	1093	1093
Adjusted R^2	0.317	0.411

Note: In column 1, the dependent variable is a dummy variable equal to 1 if there is at least one woman on the board, and 0 otherwise; whilst in column 2, it is the percentage of women on the board. The model includes regional dummies interacted with year dummies. Their coefficients are not reported for brevity but are available upon request. All estimates are obtained using a fixed-effects estimator. Standard errors clustered at the bank level are in parentheses. See Table 2 for definitions of all variables. * Denotes significance at the 5% level, ** denotes significance at the 1% level and *** denotes significance at the 0.1% level.

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[21]Appendix G also discusses results obtained using a correlated random-effects approach (Wooldridge, 2010).

Compared to the results in Table 5, these findings indicate that the effect of the GM law on the boards of unlisted companies starts in 2013/14 instead of 2012. This suggests that the positive and significant coefficients associated with the 2012/13 dummies that we had identified in Table 5 might have been due to macroeconomic factors/business cycle effects which were not properly controlled for. Yet, we are confident that the positive and significant coefficients associated with the 2013/14–2018 fixed effects in Table 6 are indeed a result of horizontal spillover effects of the GM law. The delayed start of these effects can be explained in two ways. First, as the law required them to comply with the quota at their first board renewal, not all listed banks had to change their boards to meet the quota requirements in 2012. So, for instance, listed banks which had renewed their board in 2012 prior to the promulgation of the GM law were not required to comply until 2015. As a result, unlisted banks may have started emulating listed banks' more diverse boards only once a sufficient number of listed banks adopted more diverse boards. Second, unlisted banks wishing to emulate listed banks in the composition of their boards might have needed some time to align the composition of their boards to that of their listed counterparts. Board composition is in fact slow to change because boards do not necessarily have open positions every year.

Making use of the full unbalanced panel

So far, we have made use of a panel of banks continuously operating over the period 2006–2018. Yet, excluding those banks that ceased operation before 2018 and those which were born after 2006 can cause sample selection problems, as excluded banks may be different from the remaining ones. In unreported statistics, we document in fact that, compared to the 1093 bank-year observations included in Tables 5 and 6, the 872 excluded bank-year observations are smaller, have a higher loans ratio and a higher standard deviation of the ROA. They also show a lower efficiency, a lower ROA, as well as a smaller board size, a lower probability of having women on the board and a lower percentage of women on the board. Considering that several of these banks defaulted between 2006 and 2018, the fact that they show a lower percentage of women on the board and a lower probability of having at least one female director is consistent

with Wilson and Altanlar (2009), who argue that UK firms led by female directors are less likely to default.

In light of these considerations, which suggest that the results in Tables 5 and 6 may be affected by sample selection bias, we verify how the use of the full unbalanced panel, which also includes those banks that ceased operation before 2018 and those which were born after 2006, affects our results. Our extended dataset includes 1965 bank-year observations for 258 banks.[22] Appendix Table H2 reports the estimates of Equation (1) augmented with regional time fixed effects for the unbalanced panel.[23] The results are consistent with those in Table 6.

Discussion and conclusions

Summary of principal findings in relation to other studies

We have investigated female presence on the boards of unlisted Italian banks over a time period centred around the enactment of the GM quota law, which required, starting from 2012, at least a fifth of the boards of Italian listed companies to be made up of women. We found evidence of horizontal spillovers: the compulsory quota on listed firms also affected the boards of financial institutions that were not obliged by law to fulfil the quota rule. Specifically, using a sample of non-cooperative unlisted banks continuously present over the period 2006–2018, we observed an increase in the probability of having at least one woman on the board, as well as in the proportion of women on the board after the enactment of the GM law. Despite the temporary nature of the law, these effects persisted and actually increased over time. Our results were robust to using different estimation methods, estimating different specifications and including in the dataset new entrants and banks which exited the sample before 2018.

We conclude that, within the Italian banking sector, likely due to normative and mimetic isomorphic pressures, board gender quotas have

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[22]Descriptive statistics for the extended sample are presented in Appendix H.

[23]We chose this specification as the inclusion of region-year fixed effects minimizes the chance that the coefficients associated with the year dummies capture macroeconomic and/or business cycle effects rather than the effects of the GM law.

proved to be effective in promoting a higher gender diversity culture not only in the boards of banks directly affected by the quota, but also in those of unaffected banks.[24] This suggests that, through these horizontal spillovers, the quota law had a more widespread effect than originally planned.

Our paper contributes to the literature which analyses the possible externalities that quota laws in corporate boards might generate. Most of this literature focuses on vertical spillovers, that is, on the effects of the quota laws on gender diversity in management below board level within companies affected by the quota (e.g. Wang and Kelan, 2013 and Bertrand *et al.*, 2019 for Norway; Bennouri, De Amicis and Falconieri, 2020 for various European countries; Maida and Weber, 2022 for Italy). To the best of our knowledge, only Ahern and Dittmar (2012) document a horizontal spillover effect of a quota law on the board diversity of companies not required to comply with the quota. They show that firms in Denmark, Finland and Sweden responded to the Norwegian quota, probably in anticipation of a similar quota in their own country. We advance this literature by investigating, for the first time, possible horizontal spillover effects of the Italian GM quota law on the gender diversity of the boards of non-listed Italian banks, which were not required to comply with the quota.

Furthermore, by showing that mimetic and normative isomorphism can explain why, when choosing the composition of their boards of directors, Italian unlisted banks mimic listed banks in adopting more diverse boards, our work presents a novel application of the theory of organizational isomorphism (DiMaggio and Powell, 1983, 1991).

Limitations

Our study has some potential limitations. First, it is based on a relatively small sample of banks. Yet, as discussed in footnote 14, this is common in the literature on banks' governance. Second, our paper focuses on the Italian banking sector and is therefore silent as to whether similar horizontal spillovers to the ones we identified also exist in other sectors and/or in other countries. Testing whether this is the case is on the agenda for future research. Third, we cannot categorically state that the diversification of the boards of listed banks causes a similar diversification in unlisted banks. To claim causality, a difference-in-differences framework would have been useful. However, we were unable to pursue this approach due to the absence of a suitable control group, that is, banks within a country comparable to Italy, but without a quota law. Similar sized countries like France or Germany are not comparable to Italy as they did not suffer from the sovereign debt crisis as much. In principle, Spain could serve as a comparison country. Yet, it introduced quota rules for large firms, although these were not legally binding (see Table 1 for details). Moreover, because it suffered from a particularly strong wave of consolidation (Montes, 2014), it would have been difficult to find a sufficient number of banks after the sovereign crisis to create a sample comparable to our sample of Italian unlisted banks.

Implications

Although, according to our findings, having more women on boards has become an 'acceptable' practice even within firms that are not forced by a law to have more diverse boards, having more gender equality at lower echelons of companies has not become a 'norm'. This is confirmed by the fact that despite the effects of the quota law on the boards of banks not affected by the law that we identified, only 4% (12%) of CEOs (senior executives) in Italy are women (Eurostat, 2020; European Women on Boards, 2020). Corresponding percentages for Belgium, Germany, Portugal, Austria and France – which also have binding quotas for women on boards – are respectively 6% (13%), 3% (14%), 0% (15%), 7% (8%) and 5% (20%) (Eurostat, 2020; European Women on Boards, 2020).[25] In summary, despite the horizontal spillovers of the GM law likely resulting from mimetic and normative isomorphism that we identified, the GM law and other similar laws promulgated in other countries did not appear to have vertical spillovers. Hence, simply enforcing female participation in corporate boards may not be sufficient to change the

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[24]It is unlikely that unlisted banks enhanced the diversity of their boards to improve performance. In unreported results, where we regressed banks' liquidity, profitability and financial fragility on womdummy and womperc and a series of control variables, we found, in fact, that the coefficients associated with the latter two variables were generally not statistically significant.

[25]These figures are calculated on the largest publicly listed companies in each country.

male-dominated workplace culture (Maida and Weber, 2022).

Although a virtuous circle has started, policymakers, bank managers and governance activists need therefore to think of other tools to be used to achieve greater diversity at lower echelons of companies such as, for instance, quotas on C-suites (Azmat and Boring, 2020).[26] By tackling gender diversity within senior management positions below board level in the affected firms, these quotas may contribute to gender equality becoming a more widespread 'norm'. In 2020, Germany agreed to introduce a mandatory quota for the number of women working in senior management positions in some of the country's leading companies in what was considered as a 'historic' move towards gender equality in German business leadership (CEO Today, 2020). A similar quota was approved in France in 2021 (Nisancioglu, Webster and Rousseau, 2022). Future research will tell whether these new developments are effective in making gender equality beyond the board of directors more widespread among quota-subjected companies. Another interesting area for future research will be to assess the extent to which, as a result of isomorphic pressures, the C-quotas recently introduced in Germany and France will also show horizontal spillover effects on companies not affected by the quotas.

Finally, in light of the important role of normative isomorphic pressures that we have documented, there could be alternative ways to increase female presence in companies' boards, C-suites and other managerial positions aside from quotas. For instance, organizations such as Catalyst, Spencer Stuart and Ernst & Young continuously track and publish statistics on the representation of women on boards. These statistics are then used by the media and legislators, among others, to pressure companies to add more women to their boards (Schwartz-Ziv, 2017). If similar statistics about female representation within managerial positions below board level were also published, then gender diversity at all levels could become a 'sacred norm' within professional business circles. Through normative isomorphic pressures, this could, in turn, induce more and more companies to adopt more gender diversity not only in their boards and C-suites, but at lower levels as well.

Additionally, governments could adopt different strategies to ensure that norms and standards – such as an increased gender diversity and equality – become sacred in business circles. One of these strategies could be the implementation of the action points highlighted in the EU Gender Equality Strategy 2020–2025 (e.g. monitoring the gender equality progress in member states, in particular in their labour market, social inclusion and education; supporting structural reforms in member states to increase gender equality in labour markets and so on).[27] By contributing to making increased gender diversity and equality sacred in business circles, by virtue of normative isomorphic pressures, these measures could, in turn, lead to a more widespread adoption of diverse boards and C-suites, as well as a higher female representation at lower managerial levels. Whether this will actually happen remains to be seen.

Acknowledgements

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[26]'C-suites' include chief executive officers, chief financial officers, chief operating officers and chief information officers.

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[27]See European Commission (2020) for further details.

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Supporting Information

Additional supporting information can be found online in the Supporting Information section at the end of the article.