



Regulating board gender diversity in Europe: The influence of cultural, governmental, and women's institutions

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ABSTRACT

This study empirically explores the formal and informal institutional antecedents of the enactment of quotas and codes to increase gender diversity on corporate boards. A panel of 30 European countries and 510 observations from 2002 to 2018 reveals that formal and informal national institutional contexts affect the likelihood of board gender codes and quotas. The presence of women in decision-making bodies is the most powerful driver of quotas and codes. Countries with better governance quality and longer maternity leave are less likely to have board gender quotas. High power distance, masculinity, uncertainty avoidance, restraint, short-term orientation, and individualism all increase the likelihood of quotas. A country's female participation in the labor market is also associated with the regulation of board gender diversity. In contrast to previous theoretical propositions, other institutional factors, such as the current presence of a left-wing government, are not related to gender diversity regulations.

1. Introduction

To address women's significant underrepresentation in the corporate upper echelons relative to their high share of education and labor market experience, a constellation of governments, non-governmental organizations, corporations, industry associations, academics, and other stakeholders enacted a series of programs (e.g., mentoring and training) that were generally not as effective as desired. Seventeen countries, including 12 in Europe, have adopted board gender quotas—both hard and soft—to increase female representation on boards. These twelve countries along with another eleven European countries formulated “comply or explain” corporate governance codes with directors' diversity related recommendations (Fig. 1). Most regulations that aim to increase female representation on boards are in European countries, and at a supranational level, the EU Directive of November 2022 proposes a 40 % quota for the under-represented sex that will apply to the 27 EU countries' public companies (European Commission, 2022).

A large body of women in the board literature examines the linkages between the presence of female directors and corporate outcomes (e.g., Kang et al., 2010; Perryman et al., 2016) and the antecedents of female directors' representation at the individual and board levels (e.g., Hillman et al., 2002; Nekhili & Gatfaoui, 2013) and firm and industry levels

(e.g., Grosvold et al., 2007; Mateos de Cabo et al., 2012). However, studies on the determinants of gender in board legislation are scarce. Moreover, although comparative cross-country research leverages institutional perspectives on corporate governance (Judge et al., 2008; Aguilera et al., 2018), there is limited research on how a country's institutions may shape women's representation on boards (Iannotta et al., 2016; Seierstad et al., 2017), and little understanding of the antecedents of governance legislation (for exceptions, see Heidenreich, 2013; Terjesen et al., 2015).

Two seminal studies examine the development of quotas but do not explicitly build on institutional theory. Teigen (2012) leveraged the diffusion theory to explain the spread of quotas from Norway to seven other European countries. Seierstad et al.'s (2017) longitudinal comparative case study explored the actors and processes in Germany, Italy, Norway, and the UK. Only two extant studies have explored the relationship between national institutional factors and quotas. Heidenreich (2013) reports that Norway's quota and Sweden's no quota response to women directors' underrepresentation are explained by distinctions in state intervention, feminist/equality discourse, business community role and position, and the business sector's relationship with the state; however, her study is restricted to two countries with shared legal origins and histories. Terjesen et al. (2015) investigated three

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institutional factors—the female labor market and gendered welfare provisions, left-leaning political government coalitions, and path-dependent policy initiatives for gender equality—in 25 countries (10 quotas and 15 codes) across geographies, but only presented descriptive evidence until 2012.

Building on the institutional theory, our study contributes both conceptually and empirically to the scant literature on the institutional drivers of women on boards legislation. We respond to calls for research on the determinants of women on board regulation (Terjesen et al., 2015; Seierstad et al., 2017).

This study makes five major contributions to the literature. First, compared to Terjesen et al. (2015), our model extends institutional theory by considering a broader range of formal (i.e., government quality and transparency) and informal (i.e., culture) institutional factors that comprise cognitive, normative, and regulative elements. Additionally, to the best of our knowledge, our study is the first to introduce a large range of formal and informal institutional features and empirically explore institutions' explanatory power regarding gender on boards' legislation (our dependent variable). Our conceptual model incorporates a broad range of factors, including formal institutions of government quality, government ideology, women's presence in parliament, welfare provisions, female labor market participation, and informal institutions of six cultural dimensions (Hofstede, 1980, Hofstede et al., 2010): power distance, individualism/collectivism, masculinity/femininity, uncertainty avoidance, long-term/short-term orientation, and indulgence/restraint. When combined, these

institutions are deeply embedded in societies, and particularly salient in understanding gender issues.

Second, the literature reveals the importance of governance quality and culture on corporate governance practices, such as the presence of women on boards (Cabeza-García et al., 2019; Carrasco et al., 2015; Grosvold, 2011; Grosvold & Brammer, 2011). By studying governance quality and culture as antecedents of diversity in board regulation, our study answers calls to analyze the determinants of women on boards (Kirsch, 2018; Yao, 2023). Third, our data cover 30 European countries over a longer and more recent period (2002–2018). Fourth, our econometric techniques significantly extend the primary focus of the extant literature to single-country descriptive cases. Our study also demonstrates the criticality of considering all institutional factors (omitted variables) and controlling for endogeneity. Fifth, we consider codes and quotas.

2. Theoretical background and hypotheses

Institutional theory focuses on the role of deep and resilient social, political, and economic systems in establishing guidelines for social behavior. Scott (1995:33) defines institutions as “cognitive, normative, and regulative structures and activities that provide stability and meaning to social behavior” and argue that they should be considered jointly. Cognitive structures reflect how actors interpret their environments through interactions, including subjective and socially constructed ideas, individually and with others and develop common beliefs

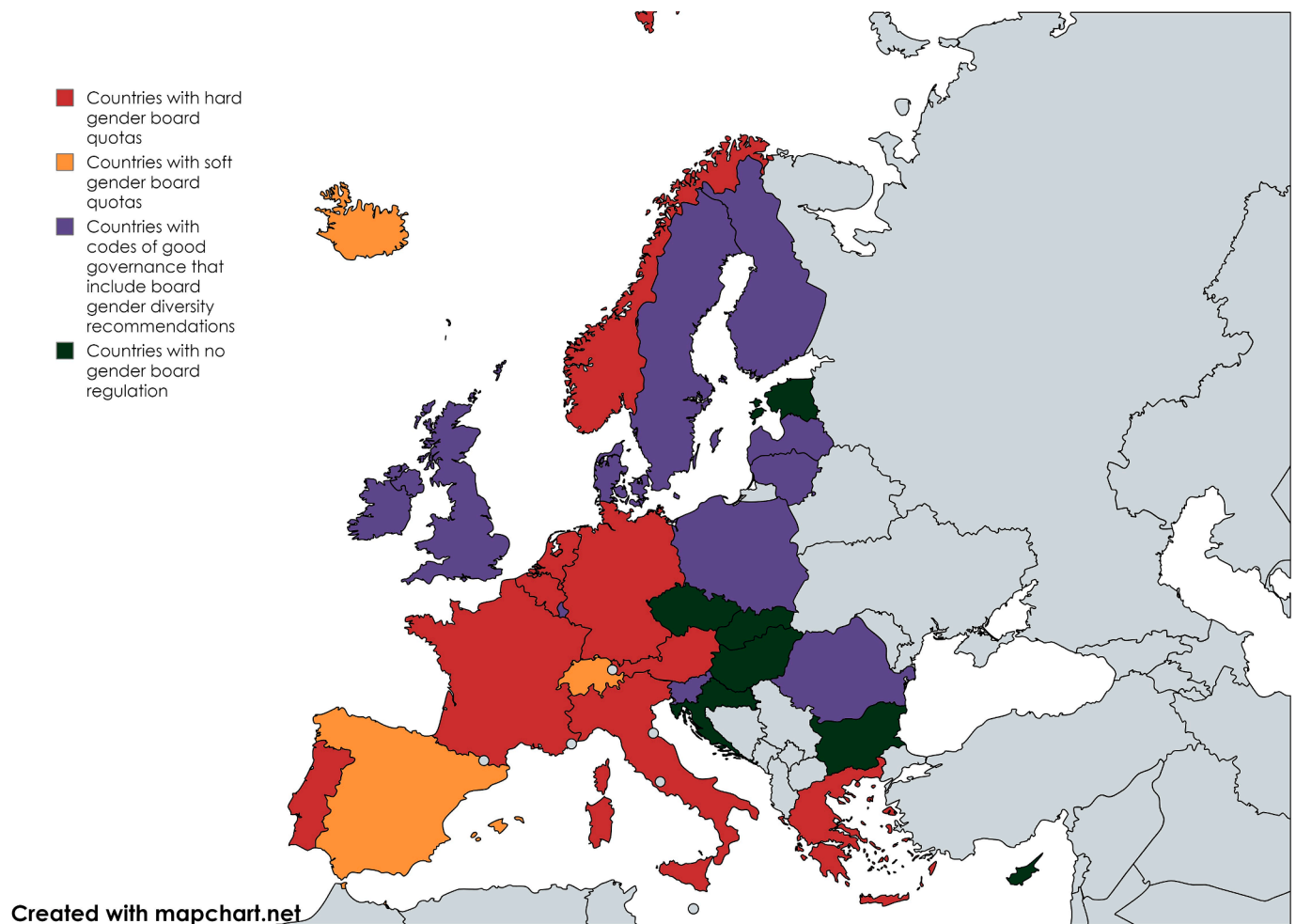


Fig. 1. European countries' gender diversity recommendations and quotas (2023)

Source: Own elaboration based on Terjesen et al. (2015), Martínez-García and Gómez-Ansón (2023), Mensi-Klarbach and Seierstad (2020) and European Corporate Governance Institute (2023)

that are culturally supported. Normative institutions are norms and values that structure choices and set binding expectations about how activities should be performed and what practices are considered legitimate. Regulative elements set the “rules of the game” and consist of written and unwritten codes with legal enforcement mechanisms. Overall, institutions provide stability and meaning to social behavior and operate at multiple levels (Scott, 1995: 235).

Thus, institutions function as “rules of the game in a society” and shape societal expectations about what is appropriate and legitimate (Scott, 1995). Institutions can be either formal, such as regulations and contracts, or informal, such as a society’s culture, values, or norms (North, 1990), and they have come to be understood as “institutional logics” that offer “assumptions and values, usually implicit, about how to interpret organizational reality, what constitutes appropriate behavior, and how to succeed” (Thornton, 2004: 70). Individuals and organizations are thus pressured to develop and refine practices that “fit” their environment (Meyer & Rowan, 1977).

We argue that these persistent, long-lasting, and embedded national institutions and logics create pressures that shape policies. As gender-related issues depend on the context (Nelson & Levesque, 2007), including the professional emancipation of women’s careers (Grosvold & Brammer, 2011; Grosvold et al., 2016; Lewellyn & Muller-Kahle, 2020; Terjesen & Singh, 2008), we extend the literature by including legislation to promote women on boards (Heidenreich, 2013; Teigen, 2012; Terjesen et al., 2015; Seierstad et al., 2017). Politicians, business leaders, and public officials ultimately enact the codes and quotas. Our conceptual model considers that individuals and organizations are pressured to develop and refine practices that “fit” the environment (Meyer & Rowan, 1977), including actors proposing and adapting legislation. Thus, we adopt an institutional theory lens and focus on country-level data.

A country’s institutional context can help explain corporate governance practices (Judge et al., 2008; Aguilera et al., 2018), including board gender diversity (Terjesen & Singh, 2008; Grosvold & Brammer, 2011; Chizema et al., 2015; Santacreu-Vasut et al., 2014; Grosvold et al., 2016; Seierstad et al., 2017; Brieger et al., 2019). Indeed, a large body of research indicates that country characteristics explain greater variation in corporate governance practices than firm and industry characteristics (Doidge et al., 2007). Previous literature analyzes the underlying reasons for the spread of Norway’s quota law to seven other European countries (Teigen, 2012); how certain factors explain quota adoption in Norway but not in Sweden (Heidenreich, 2013); how the labor market and welfare provisions, government ideology, and path-dependent policies shape board gender regulation in 25 countries (Terjesen et al., 2015); and some actors’ roles in approving European legislation (Seierstad et al., 2017).

Our conceptual model extends this literature by considering the influence of institutional variables beyond quotas to include codes (only Seierstad et al., 2017 consider a code when studying actors in four European country cases). We extend previous research on a few formal institutions (e.g., government ideology, women’s presence in government, welfare provisions, and labor market participation) to incorporate a larger range of factors, including formal institutions of government quality, government ideology, women’s presence in parliament, welfare provisions, female labor market participation, and informal institutions with six cultural dimensions. Overall, this set of institutions encompasses a range of factors that are deeply embedded in societies and are particularly salient in understanding gender issues. We explore whether these institutional structures lead to a “dominant logic” that elicits an isomorphic response in terms of a board gender quota or code.

2.1. Formal institutions

2.1.1. Governance quality and transparency

Our first key formal institutional parameter is the country’s quality and transparency of governance; that is, the control of corruption, rule

of law, regulatory quality, government effectiveness, political stability, and accountability. Previous research shows that long-lasting and embedded greater government transparency improves women’s involvement in the labor market, such that countries with more women in political offices tend to have greater governance quality and transparency (Rosen, 2013), greater impartiality and control of corruption (Sundström & Wängnerud, 2016), and more women on corporate boards (Grosvold, 2011). National governments create and maintain legal and regulatory infrastructures, including corporate governance practices, with which businesses must comply.

Even though countries with higher levels of governance quality and transparency may have greater citizen support for gender quotas (Barnes & Córdova, 2016), we argue that due to these countries’ higher levels of board diversity, there is less need for approving regulations to promote good governance practices and female presence on boards. In contrast, countries with poor-quality governance and transparency are more likely to enact diversity in board legislation, given the greater demand to alter legal and regulatory environments.

The signaling theory (Spence, 1973) and isomorphic pressures support this hypothesis. Countries with poor governance quality are prone to send signals to the market about their compromise with good corporate governance practices such as board gender diversity. For instance, Berglöf and Claessens (2004) reveal that countries seeking to improve their institutional environments—for example, by limiting corruption and strengthening the rule of law—gradually develop better corporate governance practices. These countries are also subject to considerable isomorphic and legitimation pressures to enhance gender in board diversity practices. For example, Doshi et al. (2019) showed that states respond to being publicly ranked and restructure bureaucracies accordingly, using the example of the World Bank to successfully reshape the global regulatory environment (increasing transparency) with the Ease of Doing Business Index. Similarly, Zattoni and Cuomo (2008) presented evidence that civil-law countries’ issuance of codes is mainly prompted by legitimation. Thus, we propose:

Hypothesis 1. *Countries with lower quality and transparency of governance will be more likely to enact board gender diversity quotas and codes.*

2.1.2. Government ideology

A second formal institutional variable that may put pressure on the enactment of board gender diversity regulations is government ideology, which can be classified as left-wing versus right-wing, according to social (progressive vs. conservative) and economic (interventionist vs. free market-oriented) policies. Institutional theory suggests many mechanisms by which a left-wing government is more likely than a right-wing government to enact board gender legislation. First, in a democracy, a political party comes to power by gaining popular support from its constituents, usually based on a cognitive commitment to certain ideas, particularly domestic policies. Second, there are normative pressures for each political party in that the party politicians’ political ideologies are characterized by “institutional sedimentation” of layers of ideological experiences held by individuals and their political parties (Wang et al., 2019). Normative and regulative pressures are evident when a politician in a given party must develop policies consistent with expected practices or risk losing their legitimacy.

Left-wing parties are typically characterized by concerns for wealth redistribution (Rueschemeyer et al., 1992), the welfare state and public provision (Spicker, 2014), employment rights (Molina & Rhodes, 2007), the environment, minority rights, and social inclusion (Inglehart, 1997). Taken together with left-wing support for outcomes and “equality of results” for women (Terjesen et al., 2015), left-wing parties’ institutionalized belief structures suggest greater support for women’s professional emancipation, to include a gender board code or quota.

We consider the following counterarguments. Although Terjesen et al. (2015) provide evidence that left-leaning political government coalitions approve board quotas, there are vast differences in left-wing

party ideologies, as shown by the varying representation of female leaders. Democratic Socialists and Green parties have the highest share of female representation, followed by the Reform Communists. Conservative Communists have the lowest levels of female representation in national parliaments (Keith & Verge, 2018), which may manifest as lower cognitive and normative pressure to promote women's presence, including the enactment of board gender diversity quotas and codes. Moreover, some left-wing governments may prioritize environmental and (non-gender) minority policies over corporate quotas and codes. Therefore, we favor the initial argument and propose the following hypothesis:

Hypothesis 2. *Countries with a current and historical presence of left-wing governments will be more likely to enact board gender diversity quotas and codes.*

2.1.3. Women's presence in decision-making bodies

A third formal institutional pillar is women's presence in government decision-making bodies, such as the government, parliament, and public administration, which varies from high shares in the Nordics, followed by Eastern Europe and France, to low shares in Anglo-Saxon and Mediterranean Europe (European Institute for Gender Equality, 2023). A variety of institutional mechanisms suggest that countries with more women in various public sector capacities are more willing to support codes and quotas that promote women's board representation. First, women's activism at high levels in politics adds normative pressure to develop and implement gender quotas in politics (Caul, 1999). There are also regulatory pressures: political gender quotas increase women's presence in political life, as well as the grounds for national parliaments that enact legislative actions to promote and preserve women's professional careers (Schwindt-Bayer & Mishler, 2005; Wolbrecht & Campbell, 2007). Moreover, female politicians are often appointed to corporate boardrooms (Hillman et al., 2002), and the presence of these women may result in a cognitive taken-for-granted expectation that governments should support policies that enable women to access corporate director roles.

We briefly consider several counterarguments. First, from a cognitive-framing perspective, the diverging skills and knowledge required in the highest echelons of politics and corporations may result in different logics of action and lower priority for quotas and codes. Second, there is evidence that females are less likely to create opportunities for other women. For example, for judicial appointments in Spain, candidates are significantly less likely to be appointed if they are randomly assigned to a committee with more evaluators of their own gender (Bagues & Esteve-Volart, 2010). This finding illustrates that cognitive and normative pressures in the form of taste discrimination as evaluators are sympathetic to candidates of the opposite gender who are then overestimated relative to same-gender candidates. Women's presence on committees affects their male colleagues' voting behavior such that male members increasingly favor male candidates, and such committees strengthen male committee members' identities. We favor the following initial positive influence argument:

Hypothesis 3. *Countries with more women in parliament will be more likely to enact board gender diversity quotas and codes.*

2.1.4. Welfare state provisions and female labor market participation

Our fourth and final set of formal institutional variables relates to welfare state provisions for childcare (maternity leave) and female labor market participation—identified as “a key part of the nature of the welfare state” and “policies and provisions that are most germane to the issue of gender opportunities” (Terjesen, et al., 2015: 238). Europe's welfare state provisions for childcare vary, with high levels in Nordic countries and Portugal, and low levels in Poland, Romania, Slovakia, and Switzerland (European Institute for Gender Equality, 2023). Female labor market participation (including part-time participation) also differs from highs in the Nordics, Central Europe, and the U.K., and lows in

Southern and Eastern Europe (European Institute for Gender Equality, 2023).

Each country's provisions for idiosyncratic “family policy” programs come to be expected and accepted through normative and cognitive pressures. A variety of institutional mechanisms explain why, in these environments, the ‘gender equality’ logic is more aligned, and thus a quota or code is more likely to be enacted. First, childcare subsidies increase women's participation in the labor force (Averett et al., 1997; Barigozzi et al., 2018), and their attachment to work, thereby demonstrating a regulative pillar that also shapes normative social expectations and the cognitive pressure that women should work. Countries with more provisions for women to raise young children and return to the workforce are likely to support other initiatives to help women advance in the labor market, including the highest echelon of the corporate board.

Moreover, there may be isomorphic pressures across countries, and non-government advocate bodies such that a board gender code or quota is promoted as the next frontier to ensure women's equal access to the labor market. In contrast, a country with a limited welfare state and fewer women in the labor market is less likely to prioritize women's ability to access managerial positions and thus would not adapt an institutional logic around the need for a code or quota setting for women's representation on corporate boards. We also briefly consider the counterarguments that board gender legislation may be independent of the general labor market, as corporate boards are prestigious positions requiring unique sets of skills and knowledge drawn from a limited director supply market, and that individuals in countries with greater regulatory institutions to support women's labor market access may have cognitive and normative perceptions that the initial groundwork has been laid and women can pursue corporate career trajectories, without setting codes or quota policies. Thus, we hypothesized the following:

Hypothesis 4a. *Countries with more developed welfare states will be more likely to enact board gender diversity quotas and codes.*

Hypothesis 4b. *Countries with higher shares of female participation in the labor market will be more likely to enact board gender diversity quotas and codes.*

2.2. Informal institutions

The informal institution of culture reflects society's institutionalized norms, including those at the national level (Scott, 1995). Culture is deeply programmed and sets the parameters under which countries, organizations, and individuals operate. Culture affects cognition and motivates and explains behaviors that correspond to the values, beliefs, and assumptions that prevail in a country (Helmke & Levitsky, 2004), including behaviors towards and perceptions of gender and gender on boards (Grosvold, 2011; Cabeza-García et al., 2019; Tyrowicz et al., 2020).

Given Europe's¹ great heterogeneity, we examine how six Hofstede (1980; 2010) cultural institutions increase the pressure on certain management practices, including the likelihood of enacting board gender regulations. Hofstede's national cultural dimensions are well-established measures in corporate governance research (e.g., Haxhi & van Ees, 2010; Gallén & Peraita, 2018), including board diversity (Grosvold, 2011; Carrasco et al., 2015; Cabeza-García et al., 2019). Various cognitive and normative pressures suggest that board gender

¹ European cultural heterogeneity is recognized by article 167 of the Treaty of the Functioning of the EU stating that “the Union shall contribute to the flowering of the cultures of the Member States, while respecting their national and regional diversity and at the same time bringing the common cultural heritage to the fore;” and “The Union shall take cultural aspects into account in its action... to respect and promote the diversity of its cultures.”.

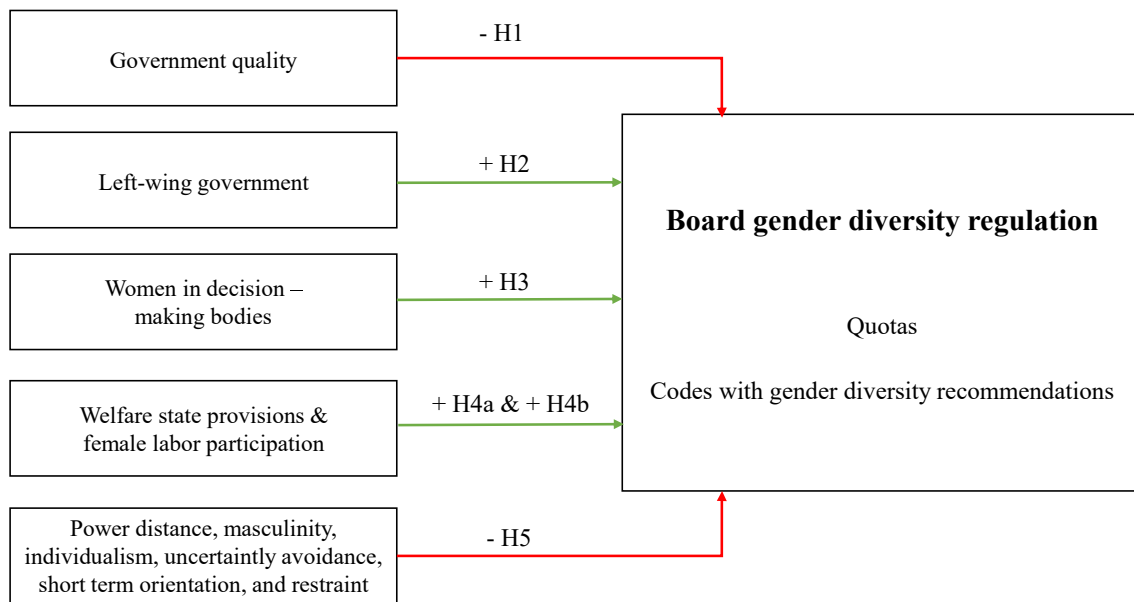


Fig. 2. Hypotheses. Source: Own elaboration

codes and quotas are enacted in environments characterized by low levels of power distance, masculinity, individualism, uncertainty avoidance, short-term orientation, and restraint.

Hofstede's *power distance* culture captures the extent to which society is comfortable with unequal power distributions. This cultural dimension is closely linked to attitudes towards gender roles (Szymanowicz & Furnham, 2013). Countries with high power distance accept unequal distributions, such that women's comparatively lower level of representation in the highest corporate echelons may be commonly regarded as "normal." For instance, Carrasco et al. (2015) found that the proportion of women on boards is lower in countries with high power distances. Likewise, countries with high power distance are not prone to adopt coercive legislation. In contrast, low power distance countries will have individuals who struggle for power equality, and consequently, they will require similar rulers. Consequently, in low power distance countries, the institutionalization of gender diversity quotas and codes will be societal and culturally supported, it will "fit" with societal norms and individuals' attitudes. The results of Cabeza-García et al. (2019) support this hypothesis.

Hofstede's *masculinity* dimension has also been consistently related to gender role beliefs (Szymanowicz & Furnham, 2013). Masculinity measures the extent to which a society is characterized by values that are considered predominantly masculine (i.e., achievement, heroism, assertiveness, and material rewards for success) compared to those treated as feminine (i.e., cooperation, modesty, solidarity, caring for the weak, and quality of life).

Matching the deep cognitive entrenchment of institutionalized preferences, we expect that countries with a more masculine culture will prioritize masculine leadership traits (i.e., strong hierarchy, high control, low emotionality, assertiveness, and focus on performance, success, and competitiveness) that are more often displayed by male leaders. Carrasco et al. (2015) showed that female presence on boards is lower in countries with high masculinity. Correspondingly, we conjecture that masculine societies are less inclined to enact board gender diversity legislation. In contrast, feminine societies support others, including people subject to inequality before business-oriented goals, and are consequently more prone to approve quotas and codes. The findings of Cabeza et al. (2019) point in the same direction.

The *individualism* dimension describes comfort within a loosely knit social framework in which individuals can excel, in contrast to collectivism, which values a tightly knit society. Societies with high

individualism scores prioritize the individual and values, such as autonomy, privacy, and personal goals. People are more likely to adopt decisions independently, particularly when aligning themselves with their own goals or achievements (Bradley et al., 2013; Pucheta-Martinez et al., 2021). Individualistic countries also consider laws and regulations to protect individual rights, including individuals' ability to freely enter contracts (Stulz & Williamson, 2003).

As gender diversity regulation relates to collective goals and is an affirmative action, countries with high individualistic values are less likely to enact legislation such as codes or quotas that may distort or hinder free and personal will. On the contrary, collective societies cherish the community, promote loyalty to a group, engagement with norms, and the search for social cohesion values. In their quest for social cohesion, collective societies are expected to be more sensitive to minority representation in decision-making positions (Very et al., 1997; Schuler & Rogovsky, 1998; Carrasco et al., 2015). This behavior, along with collective society's commitment to norms, supports their openness towards codes and quotas that promote women's representation in corporate bodies.

Uncertainty avoidance captures the degree to which society is comfortable with ambiguity. Societies with low degrees of aversion to uncertainty are open to change, able to adapt to new realities, and more tolerant of different opinions and behaviors. In contrast, societies with higher levels of uncertainty avoidance have stricter rules, laws, and controls to reduce ambiguity; thus, individuals are less comfortable with change. As women bear different perspectives on debates within boards and decision-making (Billing & Alvesson, 1989) and board gender quotas and codes result in considerable changes in board composition, we argue that countries' higher uncertainty avoidance decreases both the likelihood of women on boards, as found by Carrasco et al. (2015), and the likelihood of gender diversity legislation.

Long-term orientation measures a society's preference for thrift and modern education versus its desire to maintain time-honored traditions. Thus, higher levels of long-term orientation are associated with greater openness to societal changes, adaptation of traditions to new circumstances, and personal adaptability (Van Everdingen & Waarts, 2003). Hence, individuals in long-term oriented societies are expected to be more willing to adapt and make changes to traditional gender roles, and we hypothesize that they will be more likely to approve gender diversity quotas and codes that will transform gender representation at the highest echelons. In contrast, societies with a short-term orientation

have institutional logics that gravitate to traditional principles and consistency, and are thus less likely to support changes to social order, such as codes and quotas.

Indulgence captures the extent to which a society values basic and natural human drives to have fun and enjoy life, versus the suppression of needs gratification and the desire for strict regulation and social norms (restraints). In indulgent societies, gender roles are freely prescribed (Hofstede et al., 2010). Conversely, restrained societies are characterized by firmly specified gender roles (at work and home), stricter sexual norms, and greater concerns about maintaining order rather than freedom of speech. Given the traditional gender values of restrained societies, we expect indulgent societies to be more likely to enact codes and quotas. These cognitive-cultural pressures lead us to expect the following:

Hypothesis 5. *Countries with lower levels of power distance, masculinity, individualism, uncertainty avoidance, short-term orientation, and restraint will be more likely to enact board gender diversity quotas and codes.*

Fig. 2 summarizes our conceptual model and hypotheses.

3. Sample, variables, and methodology

3.1. Sample and data sources

The initial sample comprises the 2018 EU (Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Ireland, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Spain, Slovakia, Slovenia, Sweden, and the U.K.) and four non-EU Schengen members (Iceland, Liechtenstein, Norway, and Switzerland). We excluded Liechtenstein and Cyprus because of the lack of Hofstede cultural measures. The final sample is a balanced panel of 30 countries from 2002 to 2018 with 510 observations (30 countries over 18 years).

We manually collected gender diversity legislative data from Terjesen et al. (2015), Martínez-García and Gómez-Ansón (2023), Mensi-Klarbach and Seierstad (2020), and European Corporate Governance Institute (2023). Governance quality and cultural variables were derived from Worldwide Governance Indicators (World Bank, 2023a) and Hofstede (2023) Insights, respectively. We use Parliaments and Governments (ParlGov, 2023), European Institute for Gender Equality (2023), and the European Commission (2023) for government ideology, women in politics and other decision-making bodies, welfare states, and labor market characteristics. Data on capital market development, financial sector structure, business sector relationships with the state, and corporate governance characteristics are obtained from the World Bank (2023b), International Monetary Fund (2023), Heritage Foundation (2023), OECD (2023), and European Trade Union Institute (2023).

3.2. Variables

Table 1 provides definitions of the variables.

Gender board legislation is measured by two dummy variables equal to one when present in a particular country and zero otherwise: hard law, a quota with or without punitive measures (*Quota*); and soft law, a code of good governance that includes board gender diversity recommendations (*Code*). Government quality is measured by six continuous variables of perceptions: (i) the extent to which public power is exercised for private gain (*Control of corruption*); (ii) the extent to which agents have confidence in and abide by the rules of society (*Rule of law*); (iii) the government's ability to carry out programs and regulations that promote private sector development (*Regulatory quality*); (iv) public service quality, independence from political pressures, quality of policy formulation and implementation, and the credibility of government commitment to such policies (*Government effectiveness*); (v) the likelihood of political instability (*Political stability*); and (vi) the extent to which citizens can select the government, freedom of expression and

association, and free media (*Voice and accountability*). Given the large number of government quality dimensions, we use Principal Component Analysis (PCA) to build a *Government quality index* (eigenvalue = 5.10) that captures 85 percent of the variability.²

Government ideology is a dummy variable equal to one when a left-wing political party is part of the national government (*Left-wing government*). Women's presence in decision-making bodies is the percentage of women in national parliaments or assemblies in both the upper and lower houses (*Women in parliament*). Welfare state provision for young children is a continuous variable: the number of days absent from employment granted to mothers (*Maternity leave*). Female labor market participation is continuous (*Female activity rate*).

Culture utilizes six Hofstede (1980, 2010) cultural dimensions: (i) *Power distance*: the degree to which the less powerful members of a society accept and expect that power is distributed unequally (high score: acceptance; low score: rejection); (ii) *Masculinity*: preferences for achievement, heroism, assertiveness, and material rewards for success (high score: masculinity) versus preferences for cooperation, modesty, caring for the weak, and quality of life (low score: femininity); (iii) *Individualism*: preferences for a loosely-knit (high score: individualism) versus tightly-knit (low score: collectivism) social framework; (iv) *Uncertainty avoidance*: degree to which members of a society feel uncomfortable with uncertainty and ambiguity (high score: uncertainty avoidance; low score: uncertainty coping); (v) *Short-term orientation*³: preferences for time-honored traditions and suspicions of societal change (high score: short-term) versus preferences for encouraging thrift and efforts in modern education as a way to prepare for the future (low score: long-term); and (vi) *Restraint*⁴ differences between societies that suppress gratification of needs and regulate via strict social norms (high score: restraint) and societies that allow relatively free gratification of basic and natural human drives related to enjoying life and having fun (low score: indulgence).

Given the large set of cultural dimensions, the specific characteristics and variability across countries, *Power distance*, *Masculinity*, *Uncertainty avoidance*, and *Restraint* dimensions are summarized in one principal component using PCA. *Cultural index* (eigenvalue = 2.16) captures 54.09 percent of variability.⁵ *Individualism* and *Short-term orientation* dimensions are considered separately.⁶

² As the second component's eigenvalue equals 0.57 and adds just 9.5 percent of variability (joint variability 94 percent), we select the first component. Eigenvectors between *Government quality index* and governance quality variables are: *Control of corruption* (0.43), *Rule of law* (0.43), *Regulatory quality* (0.41), *Government effectiveness* (0.43), *Political stability* (0.31), and *Voice and accountability* (0.43).

³ Original Hofstede dimension is *Long-term orientation*; *Short-term orientation* is calculated as 100 minus *Long-term orientation* scores.

⁴ The original Hofstede dimension is *Indulgence*. *Restraint* scores are calculated as 100 minus *Indulgence* scores.

⁵ Because the second component's eigenvalue is 0.92, and adds 23.19 percent of variability (joint variability 77.28 percent), we select the first principal component. Eigenvectors between *Cultural index* and culture dimensions: *Power distance* (0.59), *Masculinity* (0.27), *Uncertainty avoidance* (0.56), and *Restraint* (0.52).

⁶ PCA for all informal institutional variables (*Power distance*, *Individualism*, *Masculinity*, *Uncertainty avoidance*, *Short-term orientation*, and *Restraint*) reveals that we should keep two principal components (eigenvalues 2.67 and 1.35, respectively). Eigenvectors between the first component and culture dimensions: *Power distance* (0.53), *Individualism* (-0.43), *Masculinity* (0.17), *Uncertainty avoidance* (0.50), *Short-term orientation* (-0.19), and *Restraint* (0.47). As the only two negative eigenvalues are *Individualism* and *Short-term orientation*, we build an index using PCA for *Power distance*, *Masculinity*, *Uncertainty avoidance*, and *Restraint*. Using a separate PCA for *Individualism* and *Short-term orientation*, results reveal that we should keep one component (Eigenvalue 1.14) and eigenvectors are *Individualism* (-0.71) and *Short-term orientation* (0.71). In line with this result (not the same direction), we separately consider *Individualism* and *Short-term orientation*.

Table 1
Variables.

Variables	Description
Gender board legislation	
Quota	Dummy variable = 1 if the country has a gender board (soft or hard) quota and = 0 otherwise.
Code	Dummy variable = 1 if the country has a code of good governance that include board gender diversity recommendations and = 0 otherwise.
Governance quality	
Control of corruption	Perceptions of extent to which public power is exercised for private gain, including petty and grand forms of corruption and “capture” of the state by elites and private interests. Range: -2.5 to 2.5.
Rule of law	Perceptions of extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Range: -2.5 to 2.5.
Regulatory quality	Perceptions of ability of the government to formulate and implement policies and regulations that permit and promote private sector development. Range: -2.5 to 2.5.
Government effectiveness	Perceptions of quality of public services, the civil service, and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government’s commitment to such policies. Range: -2.5 to 2.5.
Political stability	Perceptions of likelihood of political instability and/or politically-motivated violence. Range: -2.5 to 2.5.
Voice and accountability	Perceptions of extent to which a country’s citizens are able to participate in selecting their government, freedom of expression and association, and a free media. Range: -2.5 to 2.5.
Governance quality index	PCA index comprises: Control of corruption, Rule of law, Regulatory quality, Government effectiveness, Political stability, and Voice and accountability.
Government ideology	
Left-wing government	Dummy variable = 1 if left-wing party is in government and = 0 otherwise.
Women in decision making bodies	
Women in parliament	Percentage of women in the parliament (upper and lower houses).
Welfare state provisions and female labor participation	
Maternity leave	Number of days of absence from employment granted to mothers during the months immediately before and after childbirth.
Female activity rate	Percentage of women aged 15–64 who are economically active.
Culture	
Power distance	Hofstede power distance deals with the extent to which the less powerful members of institutions and organizations expect and accept (high score) or regret (low score) that power is distributed unequally. Range: 0 to 100.
Individualism	Hofstede individualism (high score) versus collectivism (low score). Range: 0 to 100.
Masculinity	Hofstede masculinity (high score) versus feminist (low score). Range: 0 to 100.
Uncertainty avoidance	Hofstede uncertainty avoidance (high score) versus uncertainty coping (low score). Range: 0 to 100.
Short-term orientation	Hofstede short-term orientation (high score) versus long-term orientation (low score). Range: 0 to 100.
Restraint	Hofstede restraint (high score) versus indulgence (low score). Range: 0 to 100.
Cultural index	PCA index comprises Power distance, Masculinity, Uncertainty avoidance, and Restraint.
Control	
Market capitalization	Stock market capitalization as percent of GDP
Banking sector	Banking sector total assets as percent of GDP
Economic freedom	Heritage Foundation economic freedom (property rights, government integrity, judicial effectiveness, government spending, tax burden, fiscal health, business, labor, monetary, trade, investment, and financial freedom). Range: 0 to 100
One-tier	Dummy variable = 1 if one-tier board structure is mandatory and = 0 otherwise.
Two-tier	Dummy variable = 1 if two-tier board structure is mandatory and = 0 otherwise.
Employees	Dummy variable = 1 if corporate governance system requires employees’ participation on the board of directors and = 0 otherwise

We control for several national factors, including country stock market capitalization as a percentage of GDP (*Market capitalization*) to capture capital market development and banking sector total assets as a percentage of GDP (*Banking sector*) to denote the importance of the financial sector. *Economic freedom index* measures a country’s property rights, government integrity, judicial effectiveness, government spending, tax burden, fiscal health, business, labor, monetary, trade, investment, and financial freedom as a measure of the business sector’s relationship with the state. Finally, we control for countries’ corporate governance characteristics (i.e., board structure and employee representation) with three dummy variables: *one-tier* equals to one when a one-tier structure is mandatory; *two-tier* equals to one when a two-tier structure is mandatory; and *employees* equals one when a corporate governance system requires employee directors.

3.3. Methodology

In addition to descriptive statistical analysis, our methodological approach for studying the impact of formal and informal institutions on the approval of a gender *quota* or the inclusion of gender diversity recommendations in a *code* (failure event) is based on survival analysis. We used the Wilcoxon test for significant differences in survival curves across countries’ institutions and tested the hypotheses using Cox proportional-hazards survival models for *quota* and non-parametric Kaplan-Meier survival models for *code*, since in the latter case, the Schoenfeld residual-based test revealed the rejection of the null hypothesis of proportional hazards (Kleinbaum and Klein, 2012).

The independent variables are estimated at t-1 to alleviate reverse causality endogeneity problems (Leszczensky & Wolbring, 2022). Heteroscedasticity issues are corrected using robust standard errors (Wooldridge, 2001). All the hypotheses are jointly tested in the same models to alleviate omitted variable bias as much as possible. We used STATA 16.0.⁷

4. Results

4.1. Gender diversity regulation: Descriptive statistics and bivariate analysis

Gender board legislation varies significantly across Europe. For the 30 countries represented in the sample, Table 2 summarizes the regulatory status of gender diversity on boards of directors: whether a country has enacted legislation on gender diversity on boards of directors, the type of regulation (quota and/or code), the date of approval of the regulation, and other relevant provisions for quotas (target and typology).

Splitting the sample into several sub-samples depending on the value of the institutional variables (above or below the mean), Table 3 presents descriptive statistics (i.e., frequency) for the dependent variables

⁷ Commands: *stcox* for Cox proportional-hazards survival model, *streg* for non-parametric Kaplan-Meier survival models, and *stphtest* for Schoenfeld residual-based test.

Table 2
Gender diversity regulation on boards of directors in Europe (2002–2018).

Country	Gender board quotas			Codes of good governance with recommendations on board gender diversity	
	Date	Target	Hard/Soft	Date	Code name
Austria	2017	30 %	Hard	2009	Austrian Code of Corporate Governance
Belgium	2011	33 %	Hard	2009	The 2009 Belgian Code on Corporate Governance
Bulgaria		No			No
Cyprus		No			No
Czech Republic		No			No
Germany	2016	30 %	Hard	2010	German Corporate Governance Code
Denmark		No		2008	Recommendations on Corporate Governance
Estonia		No			NO
Greece		No		2013	Hellenic Corporate Governance Code for Listed Companies
Spain	2007	40 %	Soft	2006	Unified Good Governance Code
Finland		No		2008	Finish Corporate Governance Code
France	2011	40 %	Hard	2010	Recommendations on Corporate Governance
Croatia		No			No
Hungary		No			No
Ireland		No		2012	The UK Corporate Governance Code and the Irish Corporate Governance Annex
Iceland	2010	40	Soft	2009	Corporate Governance Guidelines
Italy	2011	33 %	Hard	2018	Corporate Governance Code
Lithuania		No			No
Luxembourg		No		2009	The Ten Principles of Corporate Governance of the Luxembourg Stock Exchange
Latvia		No			No
Malta		No			No
Netherlands	2013	30 %	Soft	2008	Dutch Corporate Governance Code
Norway	2003	40 %	Hard	2009	The Norwegian Code of Practice for Corporate Governance
Poland		No		2010	Code of Best Practice for WSE Listed Companies
Portugal	2017	33.3 %	Hard	2016	Corporate Governance Code
Romania		No		2015	Code of Corporate Governance in Romania
Sweden		No		2004	Swedish Code of Corporate Governance: A Proposal by the Code Group
Slovenia		No		2016	Slovene Corporate Governance Code for Listed Companies
Slovakia		No			No
Switzerland		No		2014	Swiss code of best practice for corporate governance
UK		No		2012	The UK Corporate Governance Code

Notes: Lithuania and Latvia introduced gender diversity recommendations in codes in 2019 and 2020, respectively. Switzerland established a soft gender quota in 2019; Greece a hard quota in 2020; Italy moved from a 33% hard quota to a 40% hard quota in 2019; and Netherlands moved from a 30% soft quota to a 33% hard quota in 2021.

Sources: Terjesen et al. (2015), Martínez-García and Gómez-Ansón (2023), Mensi-Klarbach and Seierstad (2020), and European Corporate Governance Institute (2023).

(*quota* and *code*) and the number of quotas and codes enacted (events) in each subsample. Panel A indicates that higher governance quality is associated with higher levels of gender diversity regulation through codes. Apart from a few exceptions, quotas are enacted mainly in countries with better governance quality (above the mean). There is no relationship between *political stability* or *regulatory quality* and quota enactment.

Contrary to expectations, *left-wing governments* are not more likely to enact gender diversity quotas or codes than centre and right-wing governments (Panel B). Similarly, although a higher number of quotas and codes are observed in countries with above-average female activity rates, the differences are not statistically significant. Countries with board-gender quotas and codes are less likely to have long *maternity leave* (Panel D). As Panel C shows, any initiative that promotes board gender diversity (quota or code) is more common in countries with higher rates of *women in parliament*.

Regarding culture, Panel E indicates that high *power distance* countries in which citizens accept a hierarchical order of unequally distributed power are less likely to have gender board legislation in the form of codes than countries with low power distance. Contrary to our expectations (Hypothesis 5), higher *individualism* is positively associated with any regulation that promotes the presence of women on boards, although the differences are only statistically significant for the codes. *Masculinity* and *uncertainty avoidance* are unrelated to codes and quotas. Countries with a higher *short-term orientation* are more likely to include board gender recommendations in their codes than countries that encourage thrift and sacrifices towards future goals. Finally, *restraint* societies are associated with a lower likelihood of board legislation of any type, with differences being significant only for codes.

Table 4 shows the bivariate correlations between the dependent and independent variables. In line with the bivariate analysis, *left-wing government* is not correlated with the dependent variables. Although *female activity rate* and *maternity leave* are positively associated with each other, *female activity rate* is positively correlated with *quota* and *code* and *maternity leave* length is negatively associated with regulation. These results suggest that welfare state provisions and female labor market participation, while often going hand-in-hand, may have a different effect on regulatory approval. No differences are observed in the sign or strength of the correlation coefficients of the institutional variables with *quota* and *code* variables, except for *cultural index* scores, which are negatively associated with *code*, but not with *quota*.

This result may predict a similar impact of formal institutions on gender diversity regulations, regardless of the type of regulation. By contrast, informal institutions may be the determining factor in the choice of one type of regulation. Finally, variables related to financial market development (*market capitalization*) and corporate governance characteristics (*one-tier* and *employees*) are positively associated with the inclusion of gender diversity recommendations in codes of good governance, but not with the enactment of board gender diversity quotas.

4.2. The influence of institutional settings on gender board legislation

Table 5 reports the results of the survival models that test all hypotheses for the dependent variable quota (Model 1) and code (Model 2). It should be noted that hazard ratios of less than unity mean that the institutional factor has a negative impact on the probability of the event occurring (enactment of regulation) while variables with a hazard ratio

Table 3
Descriptive statistics.

PANEL A: Governance quality		N	Quota			Code		
			Freq.	Events	Wilcoxon test	Freq.	Events	Wilcoxon test
Control of corruption	Above	251	22.31	7	2.77*	54.58	14	16.21***
	Below	259	7.72	3		14.29	7	
Rule of law	Above	261	20.69	7	2.14	51.72	14	13.21***
	Below	249	8.83	3		15.66	7	
Regulatory quality	Above	255	15.68	5	0.01	47.45	13	7.39***
	Below	255	14.12	5		20.78	8	
Government effectiveness	Above	247	21.46	8	4.90**	54.66	15	17.97***
	Below	263	8.75	2		14.83	6	
Political stability	Above	280	14.64	7	0.68	43.21	14	4.35**
	Below	230	15.22	3		23.04	7	
Voice and accountability	Above	268	21.27	8	3.83**	51.87	15	14.60***
	Below	242	7.85	2		14.46	6	
Governance quality index	Above	255	21.96	8	4.02**	54.51	15	16.73***
	Below	255	7.84	2		15.81	6	
PANEL B: Government ideology		N	Freq.	Events	Wilcoxon test	Freq.	Events	Wilcoxon test
Left-wing government	Yes	162	21.60	5	2.95*	34.57	6	0.012
	No	348	11.78	5		33.91	15	
PANEL C: Women in decision making bodies		N	Freq.	Events	Wilcoxon test	Freq.	Events	Wilcoxon test
Women in parliament	Above	224	30.36	8	8.24***	55.35	13	16.18***
	Below	286	2.80	2		17.48	8	
PANEL D: Welfare estate provisions and female labor market participation		N	Freq.	Events	Wilcoxon test	Freq.	Events	Wilcoxon test
Maternity leave	Above	142	0	0	4.94**	16.90	4	4.07**
	Below	368	20.65	10		40.76	17	
Female activity rate	Above	271	17.34	6	0.24	41.33	12	1.73
	Below	239	12.13	4		25.94	9	
PANEL E: Culture		N	Freq.	Events	Wilcoxon test	Freq.	Events	Wilcoxon test
Power distance	Above	238	15.97	5	0.05	24.37	9	2.73*
	Below	272	13.97	5		42.65	12	
Individualism	Above	323	18.58	7	0.54	41.80	15	3.19*
	Below	187	8.56	3		20.86	6	
Masculinity	Above	238	8.82	4	0.67	31.09	10	0.35
	Below	272	20.22	6		36.76	11	
Uncertainty avoidance	Above	272	14.71	4	0.07	28.68	11	0.88
	Below	238	15.12	6		40.34	10	
Short-term orientation	Above	238	16.39	4	0.03	45.80	13	3.80*
	Below	272	13.60	6		23.89	8	
Restraint	Above	272	10.50	4	0.41	16.39	6	10.37***
	Below	238	18.75	6		49.63	15	
Cultural index	Above	306	12.42	4	0.07	18.95	11	0.88
	Below	204	25.49	6		56.86	10	

* p < 0.10; **p < 0.05; *** p < 0.01.

greater than one increase the likelihood of the event occurring.

Our results partially support **Hypothesis 1**: While greater *governance quality index* significantly decreases quota likelihood (Model 1), it does not influence the inclusion of gender recommendations in codes (Model 2). Contrary to the bivariate analyses showing positive relationships between several variables summarized in *governance quality index* (*control of corruption*, *rule of law*, *government effectiveness*, and *voice and accountability*), better government quality negatively influences the likelihood of quotas, supporting **Hypothesis 1** for this type of gender on board regulation. In line with the bivariate analysis (Table 2), *left-wing government* does not influence the likelihood of quotas (Model 1) or codes (Model 2). Thus, **Hypothesis 2** is not supported. Our results confirm that countries with more women in their decision-making bodies are more likely to enact quotas and codes. Models 1 and 2 reveal a positive impact and are highly significant in the case of quotas of *women in parliament* on the likelihood of any regulation, thereby

supporting **Hypothesis 3**.

Consistent with the bivariate analyses but contradicting Hypothesis 4a, we observe a negative influence of *maternity leave* length on quotas (Model 1). However, this negative and significant influence of *maternity leave* length on the likelihood of board gender diversity regulations is not observed in the codes (Model 2). *Female activity rate* has a significant impact on regulation: female labor market participation negatively influences the likelihood of both quotas (Model 1) and codes (Model 2). Thus, female labor market participation seems to negatively influence the likelihood of board gender regulations. Thus, Hypothesis 4b is not supported.

Concerning **Hypothesis 5** on culture, the *cultural index* (positively correlated with *power distance*, *masculinity*, *uncertainty avoidance*, and *restraint*) positively influences quota likelihood, and higher levels of *individualism* and *short-term orientation* also increase quota likelihood (Model 1). These results contradict **Hypothesis 5**, as countries with high

Table 4
Descriptive statistics and correlations for study variables.

	Mean / Freq (a)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Quota (a)	0.019	1															
2. Code (a)	0.341	0.448*** (0.000)	1														
3. Governance quality index	0.019	0.234*** (0.000)	0.343*** (0.000)	1													
4. Left-wing government (a)	0.316	0.071 (0.110)	0.007 (0.884)	-0.138*** (0.002)	1												
5. Women in parliament	25.49	0.503*** (0.000)	0.569*** (0.000)	0.589*** (0.000)	-0.003 (0.946)	1											
6. Maternity leave	21.71	-0.270*** (0.000)	-0.178*** (0.000)	-0.315*** (0.000)	-0.061 (0.173)	-0.265*** (0.000)	1										
7. Female activity rate	66.04	0.262*** (0.000)	0.386*** (0.000)	0.569*** (0.000)	-0.043 (0.328)	0.682*** (0.000)	-0.145*** (0.001)	1									
8. Cultural index	0.00	-0.021 (0.634)	-0.211*** (0.000)	-0.836*** (0.000)	0.095** (0.031)	-0.596*** (0.000)	0.212*** (0.000)	-0.656*** (0.000)	1								
9. Individualism	59.33	0.177*** (0.000)	0.197*** (0.193)	0.562*** (0.000)	-0.122*** (0.006)	0.261*** (0.000)	-0.221*** (0.000)	0.241*** (0.000)	-0.569*** (0.000)	1							
10. Short term orientation	43.33	0.162*** (0.000)	0.193*** (0.000)	0.181*** (0.000)	0.049 (0.273)	0.129*** (0.004)	-0.178*** (0.000)	0.107** (0.016)	-0.297*** (0.000)	-0.140*** (0.002)	1						
11. Market capitalization	55.47	0.084* (0.057)	0.234*** (0.000)	0.601*** (0.000)	-0.164*** (0.002)	0.337*** (0.000)	0.073* (0.098)	0.311*** (0.000)	-0.490 (0.000)	0.352*** (0.000)	0.038 (0.398)	1					
12. Banking sector	100.58	0.170*** (0.000)	0.298*** (0.000)	0.522*** (0.000)	-0.035 (0.449)	0.435*** (0.000)	-0.090** (-0.048)	0.369*** (0.000)	-0.562*** (0.000)	0.269*** (0.000)	0.365*** (0.000)	0.493*** (0.000)	1				
13. Economic freedom	78.13	0.280*** (0.000)	0.363*** (0.000)	0.629*** (0.000)	-0.125*** (0.005)	0.515*** (0.000)	-0.301** (0.000)	0.557*** (0.000)	-0.660*** (0.000)	0.419*** (0.000)	0.227*** (0.000)	0.307*** (0.000)	0.503*** (0.000)	1			
14. One tier (a)	0.200	-0.077* (0.082)	0.157*** (0.000)	0.078* (0.081)	0.070 (0.117)	-0.054 (0.228)	0.053 (0.235)	-0.167*** (0.000)	-0.125*** (0.005)	0.094** (0.033)	0.340*** (0.000)	0.156*** (0.000)	0.345*** (0.000)	0.111** (0.012)	1		
15. Two tier (a)	0.200	-0.051 (0.246)	0.033 (0.456)	0.017 (0.705)	-0.088** (0.046)	0.092** (0.038)	-0.226*** (0.000)	0.244 (0.000)	-0.046 (0.296)	0.079* (0.039)	-0.107** (0.016)	-0.228*** (0.000)	-0.072 (0.113)	0.014 (0.754)	-0.250*** (0.000)	1	
16. Employees (a)	0.433	-0.021 (0.640)	0.122*** (0.006)	0.283*** (0.000)	0.075* (0.092)	0.142*** (0.001)	-0.189*** (0.000)	0.146*** (0.001)	-0.233*** (0.000)	0.103** (0.020)	-0.156*** (0.000)	0.022 (0.619)	-0.036 (0.432)	0.010 (0.822)	-0.269*** (0.000)	-0.101** (0.023)	1

* p < 0.10; **p < 0.05; *** p < 0.01.

Table 5
The influence of institutional setting on gender board legislation.

	Model 1	Model 2
	DV: Quota	DV: Code
Governance quality index	0.022*** (-2.65)	1.628(0.79)
Left-wing government	4.267(1.36)	0.525 (-0.60)
Women in parliament	1.547***(5.07)	1.310*(1.88)
Maternity leave	0.408*** (-4.36)	1.052(1.26)
Female activity rate	0.779* (-1.93)	0.925** (-2.03)
Cultural index	68.386***(2.09)	3.835(1.13)
Individualism	1.623****(4.49)	1.071(1.08)
Short term orientation	1.164****(3.05)	1.072(1.37)
Market capitalization	0.947*** (-2.42)	1.013****(2.71)
Banking sector	1.060****(2.67)	0.998 (-0.27)
Economic freedom	1.075(1.35)	1.050(0.75)
One-tier	58.312***(2.27)	24.262*(1.68)
Two-tier	20.132***(2.23)	14.874*(1.87)
Employees	1,974****(3.73)	18.710(1.55)
Wald's χ^2	626.91***	76.86***
Schoenfeld residual-based test	15.92	58.86***
N countries	30	30
N failures	10	20
Time at risk	414	327
N observations	480	480

Values are hazard ratios, with z values in parentheses. Wald's χ^2 is a Wald test of the joint significance of the reported coefficients of the explanatory variables, asymptotically distributed as χ^2 under the null hypothesis of no relationship for all explanatory variables. Schoenfeld residual-based test of proportional hazards, asymptotically distributed as χ^2 under the null hypothesis of proportional hazards. Models are estimated with the constant but they are not reported in the table. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

levels of power distance, masculinity, uncertainty avoidance, restraint, individualism, and short-term orientations were expected to be less likely to enact board gender diversity quotas and codes.

Regarding the codes (Panel B), the results highlight that cultural dimensions are not determinant factors in including gender diversity recommendations in the codes (Model 2). *Cultural index* (positively correlated with *power distance*, *masculinity*, *uncertainty avoidance*, and *restraint*), *individualism*, and *short-term orientation* do not seem to influence the likelihood of codes. Overall, the results do not support [Hypothesis 5](#). In contrast to [Hypothesis 5](#), the results show that *individualism*, *short-term orientation*, *power distance*, *masculinity*, *uncertainty avoidance*, and *restraint* cultural positively influence quota enactment. In addition, without supporting [Hypothesis 5](#), culture is not a significant determinant of the codes.

Overall, given the significance level of the independent variables explaining the enactment of board gender diversity regulations, our results indicate that the principal antecedents of any type of board gender diversity regulation (broadly defined) are women in decision-making bodies and female labor participation. Specifically, countries with a higher presence of women in the legislature and relatively lower participation of women in the labor market are more likely to have board gender quotas and codes.

In contrast, the institution of culture and government quality affect the type of board gender diversity regulation differently. These are not the key determinants of codes, whereas countries with lower governance quality and high levels of individualism, short-term orientation, power distance, masculinity, uncertainty avoidance, and restraint are more likely to pass quotas.

Regarding controls, economic freedom does not influence the likelihood of adopting codes or quotas. The degree of capital market

development increases the likelihood of codes, and reduces the likelihood of quotas. Countries with high market capitalization appear to regulate board gender diversity through codes. *Market capitalization* positively impacts code adoption and reduces the likelihood of quota regulation. Finally, corporate governance affects the enactment of both types of regulations. In comparison with countries where companies can choose between one- or two-tier boards of directors, countries where companies have a fixed or mandatory board of directors structure (one- or two-tier) are more likely to include gender recommendations in codes and enact board gender quotas. Employee representation on boards of directors positively influenced the likelihood of quotas.

4.3. Robustness checks

We repeat our estimations using additional measures, models, and methodologies. First, we estimate the models in [Table 5](#) using exploratory factorial analysis (EFA) instead of principal component analysis (PCA) to build a *government quality index* and a *cultural index*. Additionally, we consider the aggregate value of the six dimensions that constitute the governance quality index to build an alternative variable that captures governance quality and transparency.⁸ Both analyses yield similar results.

Second, we estimate the models in [Table 5](#) lagging the independent variables in two and three periods, tightening the procedure to control for potential reverse causality endogeneity problems. These results are similar.

Third, we repeat the models reported in [Table 5](#) using both the panel data probit and logit models. Given the structure of our sample (panel dataset) and the characteristics of our dependent variables (dummy variables), panel data binary response models can be considered an alternative econometric technique for testing the research hypotheses. The results are similar, except for *female activity rate* which turns out to be non-significant (Models 1 and 2).

Finally, we consider each institutional dimension individually in an individual model instead of considering all institutional factors jointly in the same model. We observe that *government quality index* is unrelated to quotas, and that *female labor activity rate* does not explain the enactment of gender diversity regulations.

Overall, the robustness check analyses reveal that women's presence in the legislature is the main trigger for gender diversity regulation, regardless of the type of norm. Other factors such as the length of maternity leave seem to slow the advancement of quotas, while culture is one of the key drivers. Indeed, these institutional factors are highly significant for all model specifications and estimation techniques.

5. Discussion

Our results support the influence of some formal and informal institutional settings on the approval of regulations that aim to increase female presence on boards. Overall, our results support the institutional theory that an array of formal and informal institutions constrains and shapes corporate governance practices, thus explaining and extending previous empirical findings on women on boards.

The formal institutional pillar of government quality and transparency negatively influences the likelihood of quotas being interpreted differently. For instance, a higher rate of women on boards of directors reported for countries with a common law legal origin in the absence of gender board regulation by authors such as [Grosvold and Brammer \(2011\)](#) could relieve policymakers from the need to enact regulations to promote women to the highest business echelons. It is also possible that

⁸ Since each cultural dimension varies across countries in its own way (see PCA in [Section 3.2](#)), we did not add the values of the cultural variables to build an alternative variable to those cultural variables included in the main models ([Table 5](#)).

institutions with greater government transparency do not support any form of cronyism, including affirmative action and taste-based discrimination. The significant positive correlation between governance quality and both women's labor market participation and women in parliament suggests that improvements in government efficiency enhance women's ability to mobilize their careers.

Contrary to the predictions of [Thams et al. \(2018\)](#) and [Terjesen et al. \(2015\)](#), our results do not support the hypothesis that left-wing governments increase the likelihood of enacting codes or quotas. The lack of findings on political ideology suggests that a commitment to gender equality transcends political parties and is consistent with mixed evidence from qualitative country case studies. That is, both right-leaning and left-leaning politicians enacted and opposed board gender legislation ([Seierstad & Huse, 2017](#)).

Additionally, we found that both codes and quotas were enacted more often in countries with a higher presence of women in decision-making bodies. This empirical result demonstrates [Terjesen et al.'s \(2015\)](#) theoretical proposition on the positive association between countries' gender equality in the economy and society and the likelihood of establishing gender board quotas. This outcome is related to the positive influence of women's political empowerment on female directors' presence reported by [Lewellyn and Muller-Kahle \(2020\)](#) for a multi-country (44 countries) sample over a period of gender proliferation in board regulations (2010 to 2016). This emphasizes that women in politics lobby for regulations that ultimately increase their presence on boards.

Regarding institutions that help women access the labor market, we find that the female activity rate is negatively associated with quota and code regulations. The economic empowerment of women does not seem to exert pressure for gender diversity in board regulations and, in fact, seems to be detrimental to the introduction of recommendations in codes and approval of quotas. Our findings are consistent with previous empirical evidence. For instance, in countries without quota regulations or recommendations in codes, such as the USA, previous research has not found evidence of a relationship between female participation in the labor market and female representation on boards ([Thams et al., 2018](#)).

Maternity leave impacts gender board legislation by reducing the likelihood of quotas. These results are in line with the findings of [Thams et al. \(2018\)](#) in the USA. They reported that progressive policies that protect women are associated with a greater share of female directors in an institutional context in which no regulations have been implemented to promote a greater presence of women on boards of directors. Similarly, countries with extensive social benefits for women have cleared the essential hurdles for women in terms of committing to equal opportunities to enter and reenter the labor market. Therefore, these countries do not prioritize the equality of outcomes by prescribing that a certain percentage of board seats should be occupied by one gender through legislation.

With respect to culture, the results reveal that countries with higher power distance, uncertainty avoidance, individualism, restraint, short-term orientation, and masculine cultures are more prone to adopt quotas but not codes. These results are consistent with previous findings on women on boards. [Carrasco et al. \(2015\)](#) and [Cabeza-García et al. \(2019\)](#) note a negative influence of cultural variables such as masculinity and power distance on board gender diversity in the absence of gender board quotas or after controlling for their enactment.

The negative association between these cultural variables and women on boards, the powerful impact of hard board gender quotas on female representation ([Ahern & Dittmar, 2012](#)) and the limited effect of soft regulation promoting women on boards ([Martínez-García et al., 2022](#)), would justify choosing quotas as a legislative measure to reduce gender imbalance in corporate bodies. Overall, this evidence extends institutional theory by noting strong cultural imprinting to support quota mechanisms that provide equal opportunities for women. Long-term-oriented societies' lower likelihood of adopting codes and quotas is consistent with the cultural emphasis on perseverance and the

importance of relationships and market positions, rather than quick or partial results. [Williamson \(2000\)](#) notes that the most enduring institutions that list between 100 and 1,000 years are characterized by "embeddedness" and contain informal institutions, customs, traditions, norms, and religion. Our study supports this.

This study contributes to literature on women on corporate boards in several ways. First, to the best of our knowledge, this study is the first to propose and quantitatively explore how a large range of country-level formal and informal configurations correspond with the enactment of quotas and codes to increase gender representation on corporate boards. Previous research on the institutional antecedents of board gender diversity regulations has been limited to conceptual propositions (i.e. [Terjesen et al., 2015](#)). Our study goes further by proposing and empirically testing the validity of the theoretical models. For instance, our findings confirm the theoretical proposition of [Terjesen et al. \(2015\)](#) that countries with more women in parliament are more likely to have quotas but do not support their proposition that left-wing parties have a higher propensity to enact quotas.

Second, we respond to recent calls for research on the antecedents of women on corporate boards ([Kirsch, 2018; Yao, 2023](#)) by studying the influence of institutional settings on board gender diversity regulations. We extend extant research linking formal and informal institutional factors to women on boards (e.g., [Cabeza et al. 2019; Carrasco et al., 2015; Grosvold & Brammer, 2011; Lewellyn & Muller-Kahle, 2020; Thams et al., 2018](#)) to explore its link to regulation. Our findings explain the influence of institutions as antecedents of gender diversity on boards by interposing in the relationship a powerful driver: board gender diversity regulation.

Third, our analyses expand on previous research by quantitatively examining the main European countries (30 countries) over a long and recent period (2002–2018). Fourth, our study underscores the importance of the empirical methodology. Our research highlights the huge and sometimes contradictory differences between empirical analysis and descriptive and bivariate analyses. By considering several institutional factors, we avoid, at least partially, biased results due to omitted variables and control for endogeneity. Fifth, in line with [Terjesen and Sealy \(2016\)](#), our study highlights the necessity of separately considering codes and quotas since institutional factors do not influence codes and quotas in the same way.

From a policy and practical perspective, our study has several implications. First, previous research highlights the important role of culture in shaping gender diversity on boards of directors ([Grosvold & Brammer, 2011](#)) and identifies cultural variables associated with the highest levels of female underrepresentation on corporate boards ([Carrasco et al., 2015; Cabeza-García et al., 2019](#)). As cultural dimensions are difficult and slow to change, previous research advocates that policymakers in countries with certain cultural heritage use affirmative action to address female underrepresentation on boards ([Lewellyn & Muller-Kahle, 2020](#)). Specifically, our research identifies that countries that tolerate more inequality, are less concerned about the collective, tend to avoid uncertainty, are competitive, and wish to maintain gender roles—which are cultural features associated with a low share of female directors ([Carrasco et al., 2015; Cabeza-García et al., 2019](#))—are more prone to adopt quotas. Thus, our study provides policymakers with new evidence in this regard.

Second, our findings indicate that board gender diversity regulations should not be replicated directly from one country to another. In this vein, we add to [Seierstad et al. \(2017\)](#) the role of national actors in increasing the number of women on boards and the formal and informal institutional environments as necessary features to consider when introducing board gender diversity legislative initiatives. International and multilateral organizations should consider the institutional contexts and specificities of countries when proposing gender on board legislation. Third, our study may help policymakers discern how the configuration of institutions shapes attitudes toward gender diversity regulations. This is particularly important given their potential

contribution to creating an institutional infrastructure that allows women to reach the upper echelons in their professional careers (Gros vold et al., 2016). From this perspective, our study identifies the economic and political spheres that women should reach and from which they can successfully lobby for the passage of affirmative action laws to enable them to reach the upper echelons of business. Our findings also identify national environments (with low-quality government and certain cultural patrons) in which the political and economic empowerment of women is necessary.

Fourth, for practitioners (firms, investors, women, etc.), our research identifies which institutional configurations make it more likely that board gender diversity regulations will be introduced. Fifth, some results related to the controls are also important for both practitioners and policymakers: the non-significant relationship between economic freedom and regulation is expected to be a true commitment to free markets rewarding merit rather than affirmative actions based on other individual characteristics. The positive impact of capital markets on gender diversity recommendations in codes of good governance and non-finding for quotas seems to indicate the positive perception of codes of good governance by firms in large and developed financial markets, making it unnecessary to adopt more coercive regulations.

5.1. Limitations and suggestions for future research

Before concluding, we acknowledge several limitations that should be addressed in future studies. First, we covered only Europe. Notwithstanding the region's prevalence of quotas and codes with gender diversity recommendations, our findings may not be generalizable to other regions, which should be examined separately. One promising extension is to examine former and current colonies of Europe's civil and common law countries to unpack the differences in corporate governance systems across regions like Africa, Latin America, and the Caribbean. Second, our research only examines outcomes and not the many debates and discussions in the media, parliament, and other forums, both private and public, that led to the adoption of gender diversity legislation. Future researchers should consider qualitative analysis of these key discussions, including the potential alignment of key stakeholders and spotlight any discussion of the country's formal and informal institutions, with a particular focus on contestation and struggle. Third, although our research incorporates many institutions, the set is not exhaustive and could consider others such as education. Countries with a larger share of women enrolled in business studies may have less need for quotas given the greater supply of female business talent and the appreciation of economic freedom.

In addition to the research directions stemming from these limitations, we outline several other potentially promising lines of inquiry. Future research could explore within-country differences in institutions and gender board regulations. For example, some regions enact local legislation in the absence of federal legislation. Further studies could also explore how changes in institutions may correspond to changes in legislative priorities. For example, do societal shifts in cultural preferences lead to new types of governance structures? Additional studies could explore variations in the enforcement of codes and quotas and determine whether enacted board gender diversity quotas (both hard and soft) and codes with gender diversity recommendations lead to desired outcomes, and which institutional variables serve as the greatest impediments and enablers of implementation. Future researchers could also explore corporate governance deviance theories (Aguilera et al., 2018) to determine which firms deviate from institutional context regulations, especially soft quotas and codes, to appoint more or fewer shares of women directors.

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CRedit authorship contribution statement

Irma Martínez-García: Writing – review & editing, Writing – original draft, Methodology, Investigation, Data curation, Conceptualization, Formal analysis, Funding acquisition, Project administration, Resources, Software, Validation, Visualization. **Siri Terjesen:** Writing – review & editing, Writing – original draft, Conceptualization. **Silvia Gomez-Anson:** Writing – review & editing, Writing – original draft, Investigation, Formal analysis, Conceptualization, Data curation, Funding acquisition, Methodology, Project administration, Resources, Supervision, Validation, Visualization.

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