



# The Corporate Board Glass Ceiling: The Role of Empowerment and Culture in Shaping Board Gender Diversity

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## Abstract

In this study, we use a mixed methods research design to investigate how national cultural forces may impede or enhance the positive impact of females' economic and political empowerment on increasing gender diversity of corporate boards. Using both a longitudinal correlation-based methodology and a configurational approach with fuzzy-set qualitative comparative analysis, we integrate theoretical mechanisms from gender schema and institutional theories to develop a mid-range theory about how female empowerment and national culture shape gender diversity on corporate boards around the world. With our configurational approach, we conceptually and empirically model the complexity that is associated with the simultaneous interdependencies, both complementary and substitutive ones, between female empowerment processes and various cultural dimensions. Our findings contribute unique insights to research focused on board gender diversity as well as provide information for firm decision makers and policymakers about possible solutions for addressing the continuing issue of the underrepresentation of women on corporate boards.

**Keywords** Board gender diversity · Female empowerment · Power distance · Masculinity · Fuzzy-set qualitative comparative analysis (fsQCA)

## Introduction

“Corporate boards are the collective keepers of Big Business’ fiscal and moral compass, and yet they do not reflect our country [United States]. Rather, they remain largely populated by older white men.” (MacDougall, 2017)

As illustrated with this opening quote, the lack of diversity on corporate boards has ethical and financial implications for organizational stakeholders. Indeed, recent studies indicate that boards lacking gender diversity, may lead to less effective governance, ethical lapses such as securities fraud, and negative financial performance outcomes (e.g.,

Carter et al. 2010; Cumming et al. 2015; Perrault 2015). This lack of women on corporate boards has garnered increasing attention from policymakers, investors, consultants, and the public at large. It has given rise to the establishment of numerous organizations and commissions to address this issue in countries around the world (e.g., Twenty Percent by 2020, Board Wise, Forte Foundation, EU Women in the Boardroom, and Thirty Percent Coalition). In addition, some countries (e.g., Norway, Iceland, Finland, and Sweden) have implemented policies specifying quotas (along with penalties for lack of adherence) for increasing the gender diversity of corporate boards (Sojo et al. 2016).

Traditionally, those who are appointed as corporate directors are individuals with power and wealth (McDonald and Westphal 2013; Useem 1984). Thus, as women around the world make progress, albeit in small measure, towards achieving equality with men with respect to economic and political power (UN Women 2015), we might expect to see the percentage of female directors on boards increase. Yet, this has not been the case in many country’s corporate boardrooms. In this study, we seek to enhance understanding of this issue by exploring the following question: How do institutional elements of economic and political

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empowerment of women along with national culture affect board gender diversity?

The economic and political empowerment of women are social processes that foster a sense of power within women such that they feel capable and motivated to make choices and pursue aspirations without being limited by gender schema (i.e., cognitive structures) dictating what roles are appropriate for them (Holzner et al. 2010; Page and Czuba 1999). Economic empowerment is defined as the process whereby individuals can exert a level of control over income opportunities, such that they have greater access to and the ability to participate in such opportunities (Negash 2011). Thus, economic empowerment of women may lessen gender inequality in a society (Eyben et al. 2008). Political empowerment of women is defined as the process by which women have increased abilities to participate and exert influence in societal decision-making (Sundström et al. 2015). As women become economically and politically empowered they not only change their personal schemas, but also affect those of other societal members (Brieger et al. 2017).

Gender schemas are also influenced by cultural values and norms that prevail in a given institutional context (Szymanowicz and Furnham 2013). Two dimensions of national culture, power distance and masculinity, have been shown to affect social gender roles (Glick 2006; Hofstede 2001). Power Distance is related to how willing a given society is to accept inequality between different groups (Van der Veegt et al. 2005). The masculinity dimension is associated with individuals believing in traditional gender roles for men and women (Hofstede 2001).

Prior cross-national research has contributed important knowledge to understanding how elements of female empowerment and national culture affect board gender diversity (Terjesen et al. 2009). Yet, this previous work has not considered the inherent causal complexity associated with how these elements of the institutional context may be simultaneously interdependent in the ways they influence women's own schemas about their capabilities as well as those of others concerning the appropriateness of women serving on corporate boards. We propose that these interdependencies will manifest as different combinations of conditions, which are equally sufficient for promoting high (low) levels of women on boards. In other words, there are multiple causal paths (configurations) by which female empowerment and supportive cultures may lead to higher levels of women on boards.

In this study, our goal is to identify these causal paths and unravel how empowerment forces and cultural dimensions together affect gender diversity of corporate boards. Further, by using a configurational approach along with conventional methods, we develop mid-range theory integrating gender schema and institutional theories in a country level study. Using a configurational approach "is neither purely inductive

nor deductive" and is best thought of as a "dialogue between theoretical ideas and empirical evidence" (Verweij and Gerrits 2012, p. 103). Thus, we deductively derive our causal conditions from previous empirical findings that align with our guiding theoretical perspectives of gender schema and institutional theories and inductively explore how they configure in complex ways to promote or impede board gender diversity.

Using a mixed methods design, employing both correlation-based longitudinal regression analysis and set-theoretic fuzzy-set qualitative comparative analysis (fsQCA), not only provides methodological triangulation, but due to the different strengths and challenges associated with each analytic technique, it provides a way to "shed a distinct but hopefully complementary light on the research topic at hand" (Vis 2012, p. 175). With conventional correlation-based methods, we identify the net effects of economic and political empowerment separately and in interaction with the cultural dimensions of power distance and masculinity over a 7-year period (2010–2016). Yet, we recognize that even with interaction terms we are not truly capturing the configurational nature of an institutional context. Thus, we use the results of this analysis to inform our configurational analysis that uses the set-theoretic techniques to analyze the causal complexity of the interdependencies (Fiss et al. 2013) of the various empowerment and cultural forces that simultaneously exist within a given institutional context.

Given that our approach permits both inductive and deductive exploration, following our identification of combinations sufficient for high and low percentages of women on boards, we use configurational logic to inductively explore the various patterns among and between the combinations. More specifically, we examine how these institutional features of empowerment and culture that influence schemas about the legitimacy of women holding positions of power may complement or be functionally substitutive in promoting higher (lower) percentages of female directors on corporate boards.

Our study contributes to the literature in several important ways. First, our integration of gender schema and institutional theories to develop mid-range theory about institutional drivers of board gender diversity contributes a more nuanced understanding of how the context in which corporate boards are embedded, shape gender schema with respect to women breaking through the glass ceilings of corporate boardrooms. This extends research that seeks to explain how and why institutions matter for addressing the important issue of the lack of women on corporate boards (e.g., Grosvold and Brammer 2011; Terjesen and Singh 2008).

Second, we confirm the importance of empowerment and institutional forces in explaining cross-national variation in board gender diversity. However, more importantly, we also demonstrate the significance of interdependencies

among them for explaining differences in the percentage of women on boards in countries around the world. Relatedly, we show that there are multiple ways for elements within an institutional context to configure to either facilitate or hinder increases in board gender diversity. Thus, highlighting the equifinal nature of this important issue, which offers different possibilities for addressing the lack of board gender diversity.

Third, our findings about the different ways empowerment forces and national culture dimensions complement and substitute one another to promote or hinder greater numbers of women on corporate boards extends the idea of institutional complementarities being a salient perspective for understanding national differences in business practices (e.g., Jackson and Deeg 2008). More specifically, it suggests that the interaction and mutual reinforcement of institutional features have important implications for issues related to gender diversity across national contexts.

Finally, our mixed method design using both correlation-based and set-theoretic approaches shows that these analytical techniques do not have to be mutually exclusive. Rather, they can work together to reveal novel insights that have important implications for research, organizational stakeholders, and policymakers.

The rest of the article is organized as follows: In the next section, we discuss the theoretical background and previous empirical research underpinning our theoretical framework. Then, by integrating logic from gender schema theory and institutional theory about how elements of empowerment and national culture influence the level of women representation on corporate boards, we develop both correlation-based and configurational hypotheses. Next, we describe the methodologies used in the study, and then discuss the results of our empirical analyses, including our inductive examination of the various patterns revealed by our configurational results. We conclude with a discussion of our findings, including implications for theory, practice, and policy, along with limitations to our study.

## Theoretical Background and Hypotheses Development

Gender schema theory posits that societal members have culture-specific cognitive structures (schemas) concerning role expectations for females and males (Bem 1981). Gender schemas have been associated with stereotyped attitudes and even discriminatory actions (e.g., Lemons and Parzinger 2007). Evaluative decisions individuals make about themselves and others are influenced by the ways gender schemas guide the processing of information (Bem 1981; Starr and Zurbriggen 2016). This includes beliefs about proper and appropriate roles for men and women in the given society

(Lemons and Parzinger 2007). Bem (1981) described this idea that an individual's perception and behavior reflect the society's definition of maleness and femaleness as gender-schematic processing. Through gender-schematic processing, there is pressure to conform to notions of what constitutes appropriate behaviors for men and women (Bem 1981). Although there are societal members who will reject these constraints about what the proper roles should be, most will feel compelled to conform to what societal norms prescribe and expect others to do the same (Ogunleye et al. 2015; Haslanger 2017; Stoljar 1995). Hence, the gender schemas prevailing within a given institutional context may significantly influence the barriers or ease in which women are motivated and able to secure directorships on corporate boards.

Similarly, institutional theory stresses that in a given context, institutional forces constrain or hinder choices and actions, by shaping societal expectations about what is appropriate and legitimate (Scott 2001). Since, from the perspective of gender schema theory, gendered expectations largely result from individuals' interactions with the culture or environment in which they are socialized (Rutter and Schwartz 2000), features of the institutional context are expected to play an influential role in the development and sustaining of gender schema (Nelson and Levesque 2007). It follows that institutional forces shaping gender schema will affect the level of female representation on corporate boards within a given institutional context.

Indeed, previous empirical research has shown that various features of the institutional context have substantial influence on the level of women representation on boards. For example, in a study covering 38 countries, Grosvold and Brammer (2011) show that up to half of the variation in the proportion of women on corporate boards across countries is explained by institutional features. In particular, several studies show that institutional elements related to empowerment of females have significant net effects on the number of women directors on corporate boards (e.g., Brieger et al. 2017; Chizema et al. 2015; Terjesen and Singh 2008).

## Empowerment Forces and Board Gender Diversity

Female empowerment is a multi-faceted social process that promotes feelings of power about choices and opportunities that women have available to them (Warth and Koparanova 2012). Economic and political empowerment are reflected by the opportunities women have in a given institutional context to enhance their economic resources and involvement in political affairs, respectively (Holzner et al. 2010; Stewart 2010). Having opportunities to enhance one's economic means and participation in political processes have been viewed as necessary elements to female empowerment around the world (Moghadam and Senftova 2005; Seierstad et al. 2017). Although much of the extant literature

highlights that the barriers to corporate directorships for women remain relatively high (Adams and Funk 2012; Terjesen et al. 2009), there is evidence that as women make gains in terms of economic and political empowerment, they are also more likely to secure positions on corporate boards. In recent work by Brieger et al. (2017, p. 4), the researchers proposed and showed that as women become more empowered, they “become capable and feel motivated and entitled to take leadership roles on corporate boards worldwide.” This reflects how female empowerment shifts women’s own cognitions about being in positions of influence and arguably should affect the schemas of their fellow citizens.

Women are economically empowered when they can gain greater access to and control over economic resources and opportunities that raises their economic status closer to that of male counterparts (Mitchell 2010). Economic empowerment creates a situation where women have increased opportunities to further develop their abilities through education, professional experience, and executive experience (Holzner et al. 2010). Previous empirical research has shown that some aspects of economic empowerment do indeed affect the level of women on boards. For example, Grosvold et al. (2016) show that in countries where females constitute a larger portion of the labor participation and managerial population, corporate boards have higher percentages of women, than in countries where these institutional features represent lower levels.

Along with the potential to access economic resources through employment and promotional opportunities, there is evidence that actually earning more pay relative to men influences the level of women on boards. Terjesen and Singh (2008), in a study of 43 countries from 2003 to 2005, find that boards have higher numbers of female directors, when a country’s gender pay gap is less, such that women earn similar incomes to men.

Similarly, there is empirical evidence that shows positive relationships between aspects of political empowerment of women and the level of women on corporate boards.

Political empowerment provides women greater participation and success within the political arena (Stewart 2010). Research by Chizema et al. (2015) in 43 countries found a positive relationship between the average percentage of women in parliament and the occurrence of women on corporate boards for the years 2007 to 2013. This was contrary to findings by Grosvold (2011) who with an earlier sample reported a negative association between the percentage of women in parliament and board gender diversity. Terjesen and Singh (2008) in their study propose that in countries where women have long-held political power, there may be less attention to and incentive for enacting change towards increasing representation in boardrooms. Therefore, they predict that countries will be more likely to have women on corporate boards when gains in the number of female elected

officials have occurred more recently. The empirical analysis supports their predictions.

Research has shown that it is possible for gender schemas to change, which then provides the opportunity for more accurate evaluations of females that can help overcome stereotypical views (James et al. 2004). Women who are empowered feel more capable and motivated to make choices and pursue aspirations without being limited by gender schema dictating what roles are appropriate for them (Brieger et al. 2017; Holzner et al. 2010; Page and Czuba 1999). As women are empowered to behave in ways that place them on more equal standing (both economically and politically) with their male counterparts, social biases towards females serving in traditionally male arenas such as corporate boards may be diminished (Eagly 2005; Terjesen and Singh 2008). Thus, when women make progress towards having greater economic opportunities and resources it is likely to not only affect their personal schemas, but also those of others societal members (Brieger et al. 2017).

Similarly, when women are politically empowered, it shows men and women in the society that women have a legitimate role to play in positions of power and influence that have traditionally been reserved for men (Terjesen and Singh 2008). When women have decision-making power it also provides the opportunity for female elected officials to promote policies that further other women’s advancement and involvement in politics (Bachelet 2010). Thus, we propose that when females have economic and political power similar to males, those empowerment forces have positive net effects on the proportion of female directors on corporate boards. Stated formally:

**H1a** Economic empowerment of women is positively related to the percentage of female directors on corporate boards.

**H1b** Political empowerment of women is positively related to the percentage of female directors on corporate boards.

### **Moderating Effects of National Culture**

Another aspect of a country’s institutional context that has been empirically associated with the level of gender diversity on boards is national culture. The cultural dimensions of power distance and masculinity, in particular, have been shown to be closely linked to attitudes about gender roles (Szymanowicz and Furnham 2013) and studied in relation to women’s representation on corporate boards. For instance, Carrasco et al. (2015) show that the proportion of women on corporate boards is lower in countries with high power distance and masculinity in a sample of firms from 32 countries.

National culture as an informal institution affects cognitions as well as motivates and justifies certain types of

behavior that are consistent with values, beliefs, and assumptions prevailing within a given country (Helmke and Levitsky 2004). Therefore, we expect that the levels of power distance and masculinity will affect how individuals and organizations react to women achieving greater economic and political power similar to men. These cultural dimensions are also expected to enhance the effects that empowerment has on females' own perceptions about their capabilities and motivations. We anticipate that relationships between economic and political empowerment of women within a given country and the level of women obtaining board directorships will be stronger when societal beliefs and attitudes are culturally compatible with the notion that women have a legitimate place in such powerful roles.

### Moderating Effects of Power Distance

Power distance is "the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally" (Hofstede 2001, p. 98). In countries characterized as having low power distance, there is greater openness for members of traditionally low- and high-power groups to engage, share perspectives, and collaborate in decision-making activities (Javidan et al. 2006; Hofstede 2001). In such contexts, cultural norms may increase the likelihood that traditional gender schemas about the roles women should have in the society are more malleable (Carrasco et al. 2015; Van der Vegt et al. 2005). In institutional contexts with low power distance, those who have traditionally held power and made decisions about such placement will be more aware of and receptive to the effects of women's empowerment. More specifically, they will be more likely to identify experienced and capable women who could serve on corporate boards (Brieger et al. 2017). In such cultures, there will be greater acceptance and openness to women who have been motivated by their greater empowerment (Brieger et al. 2017) to seek corporate directorships. Consequently, in low power distance countries, relationships between economic and political empowerment with the percentage of women on corporate boards are expected to be stronger than those in high power distance countries.

In contrast, in high power distance cultures, an unequal distribution of power is accepted and members of different status groups tend not to trust one another (Hofstede 2001). Glick (2006) suggests that high power distance contributes to gender inequality in many countries. One reason for this is that in high power distance countries, those with lower status and power are less likely to challenge the status quo (Van der Vegt et al. 2005). Although empowerment may make women feel they are entitled to positions on corporate boards (Brieger et al. 2017), for those who are in high power distance countries, the sense of entitlement may be

less salient. Those with greater power (Hofstede 2001) will likely disregard women who are motivated by their empowerment (Brieger et al. 2017) to seek out such positions. Further, those with greater status (e.g., male decision makers) may be threatened by increases in women's economic and political power, thus being even more committed to maintaining greater proportions of men in places of power, such as corporate boardrooms. Hence, we put forth the following interaction hypotheses:

**H2a** Higher levels of power distance reduce the positive net effects of economic empowerment on the percentage of female directors on corporate boards.

**H2b** Higher levels of power distance reduce the positive net effects of political empowerment on the percentage of female directors on corporate boards.

### Moderating Effects of Masculinity

The cultural dimension of masculinity is directly related to beliefs about gender roles in a society (Hofstede 2001). As noted by Hofstede (2001, p. 297), in countries with high levels of masculinity, "social gender roles are clearly distinct," which often results in diminished roles for women in management positions and as well as larger gender wage gaps.

In cultures that are not highly masculine (i.e., feminine cultures), societal members are less rigid about what roles men and women should perform and tend to recognize the interdependencies between different groups (Rawwas et al. 1998). Therefore, we expect that in countries that do not have a masculine-oriented culture, it will be easier to modify gender schema about the roles women are capable of fulfilling. In situations where women are achieving parity with men in respect to economic and political influence, those in less masculine cultures will show greater tolerance and acceptance towards women being in non-traditional positions, such as corporate directorships.

In highly masculine cultures, there is a very clear distinction about what roles men and women should have. For males, the expectation is that they will be in roles focused on achievement, control, and power, while women will be more focused on fulfilling roles associated with personal relationships, emotions, and quality of life issues (Hofstede 2001). In highly masculine societies, the social roles of men and women are highly divergent, leading to well-accepted stereotypes that scholars have argued facilitates consistent bias against women when it comes to appraising their skills (Sealy et al. 2009). Research has shown that stereotypes of women do indeed lessen their chances of being appointed to boards (e.g., Konrad et al. 2000; Oakley 2000; Sealy et al. 2009). Therefore, while increased economic and political empowerment of females may provide a larger pool

of qualified and motivated female candidates for corporate board directorships, we expect that in highly masculine cultures, gender schemas that view positions of power to be most appropriate for males will be particularly prominent. In such cultures, schematic content with respect to legitimate gender roles will be much more difficult to modify, which leads to the following interaction hypotheses:

**H3a** Higher levels of masculinity reduce the positive net effects of economic empowerment on the percentage of female directors on corporate boards.

**H3b** Higher levels of masculinity reduce the positive net effects of political empowerment on the percentage of female directors on corporate boards.

### Configurational Hypotheses

With a configurational approach, we can examine how empowerment forces and cultural dimensions interact simultaneously (Leischnig and Woodside 2017) to affect gender schemas within a given institutional context. Such an approach recognizes the complexity of institutional environments and acknowledges the premise of systems theory, such that there is a focus on the relationships between the parts of the interconnected whole (Boulding 1956). A configurational examination provides a way to think of causality in terms of whether combinations of these institutional attributes are sufficient or not for outcomes associated with high and low female representation on corporate boards. Studying causality in terms of sufficiency also allows for the notion of equifinality, such that empowering forces and supportive cultural norms may combine in different ways across countries, but be equally effective (Misangyi et al. 2017).

With a configurational perspective, we can model the inherent complexity of institutional drivers of schemas, meaning it is highly likely that not only are empowerment forces and cultural dimensions interacting to affect the level of women appointed to boards, but they are interdependent. These interdependencies arise from complementarity or substitution between the various institutional elements. If they work in a complementary fashion, empowerment forces and supportive cultural dimensions (e.g., low power distance and low masculinity) mutually reinforce their respective effects (Aguilera et al. 2008) on changing cognitive schema about women holding powerful positions in corporate boardrooms. If they are interacting in substitutive ways, they are functionally equivalent (García-Castro et al. 2013) in the way they affect gender schema and board gender diversity.

The concept of complementarity suggests that in institutional contexts where women have achieved high levels of economic and/or political power, the legitimacy of

such empowerment will be reinforced by cultural norms associated with low power distance and low masculinity. These mutually reinforcing conditions will be more likely to influence or modify schemas about the proper role of women in powerful positions, such as directors of corporate boards. Whereas, when empowerment of women is occurring in environments where cultural norms are less receptive to changes in power structures (high power distance) and/or less flexible with respect to gender roles (high masculinity), changes to gender schema will be more difficult and, thus, constitute a context not sufficient for higher percentages of women on the board.

The idea that institutional elements are substitutable means different elements may functionally affect the outcome in the same way (Schneider et al. 2010). This functional equivalence suggests that empowerment forces and supportive cultural dimensions (e.g., low power distance and low masculinity) may be equally as effective in influencing gender-schematic processing. In other words, the presence of a supportive culture or strong empowerment forces is sufficient for promoting flexible gender schemas that lead to greater numbers of women on corporate boards. Thus, having a supportive culture may not further increase board gender diversity when empowerment forces are present or vice versa.

With configurational approaches, we can also consider the asymmetrical nature of a phenomenon (Misangyi et al. 2017), such that empowerment and cultural conditions “found to be causally related in one configuration may be unrelated or even inversely related in another” (Meyer et al. 1993, p. 1178). Thus, we expect that when conditions for economic and/or political empowerment are low they too will be complemented or substituted by cultural norms, but in ways that lead to lower levels of women on boards. Cultural norms that view power differentials as appropriate (high power distance) and gender roles to be very specific (masculine) will either reinforce or substitute for disempowering forces, making it highly likely gender schemas which will be much less prone to modification.

Building on these concepts of complementarity and substitution, we suggest that no single empowerment force or cultural dimension will be sufficient for explaining the level of women on corporate boards. Therefore, we propose that it will be combinations of empowering/disempowering forces and national culture that promote/hinder advancement of women to corporate boards. As such, we put forth the following configurational hypotheses:

**H4a** Combinations of conditions related to the empowerment of females and supportive cultural norms, rather than any single condition, will be sufficient for the occurrence of high percentages of female directors on corporate boards.

**H4b** Combinations of conditions related to the lack of empowerment of females and non-supportive cultural norms, rather than any single condition, will be sufficient for the occurrence of low percentages of female directors on corporate boards.

## Methodology

### Sample

To construct our sample, we first collected information on the percentage of women on corporate boards from data reported by MSCI ESG Research Inc. (Lee et al. 2015). The data are compiled from over 4000 global companies, which includes all companies of the MSCI ACWI, MSCI EAFE, MSCI Emerging Markets, and MSCI World indices, plus an additional 1,700 large and mid-cap developed market companies. The 2016 report did not include data for 2012, therefore for that year we used values from IMD's World Competitiveness Yearbook, which came from GMI. It should be noted that MSCI reports that their methodology is based on GMI's original work in 2009 and that GMI is now part of MSCI. This provided data from 47 countries, of which one, Qatar, did not have Hofstede cultural dimensions reported. The remaining 46 countries dropped to 44 after merging with the empowerment data from the World Economic Forum's annual *Global Gender Gap Reports* as there were no measures for Hong Kong and Taiwan. For the regression analysis, we use a longitudinal sample comprised of data from 2010 to 2016 for the outcome variable (percentage of women on corporate boards), and 2009 to 2015 for the explanatory variables. For the fsQCA following the examples of Greckhamer (2016) and Schneider et al. (2010), we consider each country-year observation as a case. Our final sample consists of 298 country-year observations.

### Measures and Calibration

The *percentage of women on corporate boards* is the outcome of interest in this study. We use data reported by MSCI ESG Research Inc., as discussed above. As we discussed in the theory sections, previous studies have used individual indicators of economic and political empowerment of females (e.g., Chizema et al. 2015; Grosvold 2011; Terjesen and Singh 2008) as well as composite measures (e.g., Brieger et al. 2017). Taking this previous research into consideration, we elect to use two composite measures reported in the World Economic Forum's annual *Global*

*Gender Gap Reports*,<sup>1</sup> which also incorporate several of the individual indicators used in prior empirical studies.

The causal condition of *economic empowerment*<sup>2</sup> is based on the following five values: the proportion of female labor force participation over the male value; wage equality between females and males for similar work; the proportion of female estimated earned income over the male value; and the proportion of female legislators, senior officials, and managers over the male value, and the proportion of female professional and technical workers over the male value. Each of these indicators are expected not only affect women's own cognitions about their capabilities but also affect schemas of others who have power to affect the composition of corporate boards.

The second *political empowerment* is based on the following three values: proportion of females with seats in parliament over the male value; the proportion of females serving at the ministerial level over the male value; and the proportion of the number of years the country has had a female head of state (last 50 years) over the male value. Again, we expect that each of these indicators will have effects on how motivated women are to seek directorships as well as on how others' perceived legitimacy of them having this role. In addition, both these measures reflect the level of women's empowerment relative to men's, which aligns with our theoretical logic and arguments put forth in previous research (e.g., Grosvold et al. 2016; Haugh and Talwar 2016).

We use Hofstede's (2001) measures for the national culture conditions of power distance and masculinity. We choose this cultural framework due to its extensive use and influence in the extant literature for many decades (Leung 2006), including previous work focused on the representation of women on corporate boards (e.g., Carrasco et al. 2015) and since values were available for all the countries in our sample.<sup>3</sup>

We also include the condition of *stock market value* as there is research that suggests greater gender diversity on boards makes stock prices more informative for investors (Gul et al. 2011), therefore markets may exert pressures to include more women on corporate boards. However, there

<sup>1</sup> For the sources of the various values please see the *Global Gender Gap Reports* 2014 (p. 4).

<sup>2</sup> This measure is labeled as "economic opportunity and participation" in the *Global Gender Gap Reports*.

<sup>3</sup> We also considered using the GLOBE dimensions of power distance and gender egalitarianism, but data were only available for 37 of the countries in our sample. We did perform the analysis with the reduced sample using the GLOBE measures and found qualitatively similar results. The regression models showed the effects to have lower statistical significance. The fsQCA identified similar configurations with most changes related to conditions becoming either/or as opposed to definitely present or absent.

is also evidence of stock market bias against women securing greater representation on corporate boards as powerful shareholders may have negative perceptions about women directors (e.g., Bigelow and Parks 2006; Abdullah et al. 2016). Since bias is often the result of gender schema (Lemons and Parzinger 2007), the level of a country's stock market value may influence the legitimacy of companies having greater gender diversity on their boards. Furthermore, a country's stock market value may have interdependencies with the general level of economic empowerment in a country (Caporale et al. 2004). Also, the value of a country's stock market has been used as a control variable in other comparative corporate governance studies (e.g., Al-Yahyaee et al. 2017; Bae et al. 2012; Ferreira and Matos 2008). Although the concept of control variables is not applicable to fsQCA, it is a valid concept in correlation-based regression techniques (Fiss et al. 2013). We measure this condition as the market capitalization of listed companies within a country as a percent of GDP as reported in the World Bank's World Development indicators database. Table 1 shows the averages for each of the causal conditions by country.

Before fsQCA can be run, the data must be calibrated whereby each case (country-year) is assigned a group-membership score in every causal condition such that a country can be 'fully in' (high values), 'fully out' (low values), or somewhere in between, thus the label 'fuzzy-set' (Schneider and Wagemann 2012). Since the literature does not provide guidance on what these values should be, empirical calibration is appropriate (Crilly 2010). Specifically, we used a quartile split of the sample, whereby countries in the top 75th percentile for a given condition are *fully in* the set, those in the 50th to 75th percentile are considered to be *mostly in*, those in the 25th to 50th percentile are *mostly out*, and those in the bottom 25th percentile are *fully out*. The fsQCA 2.0 software was used to transform the measures into the fuzzy sets via the *calibration* function. Table 2 shows the specific values used for calibration.

## Results

### Correlation-Based Random Effects Regression Results

Table 3 shows correlations, means, standard deviations, and variance inflation factors (VIFs). Although there are several significant correlations, the VIFs average 1.29 with a maximum of 1.52, indicating multicollinearity should not be an issue for our analysis.

Table 4 shows the random effects regression models, which were estimated using the *xtreg* command in STATA to account for our panel data structure (e.g., multiple observations across years per country). Model 1 shows the main

effects. As expected, we see that economic and political empowerment are positive and statistically significant ( $b = 30.56, p < 0.001$ ;  $b = 24.73, p < 0.001$ ), providing support for both H1a and H1b. Although, we did not propose direct effect hypotheses for the cultural dimensions, we observe that our results are aligned with previous investigations which did focus on these net direct effects (e.g., Carrasco et al. 2015). More specifically, the cultural dimensions of power distance and masculinity are negative and have marginal statistical significance ( $b = -0.06, p < 0.10$ ;  $b = -0.05, p < 0.10$ ).

The interactions between the empowerment and culture variables are presented in models 2–5. Hypothesis 2a, which predicted power distance will negatively moderate the positive effects of economic empowerment on the percentage of female directors on corporate boards is supported as the regression coefficient for the interaction of power distance and economic empowerment is negative and significant (Model 2:  $b = -0.75, p < 0.01$ ). Hypothesis 2b is supported to a lesser extent, as the significance level for the interaction effect of power distance and political empowerment is 10% (Model 3:  $b = -0.33, p < 0.10$ ).

Hypothesis 3a predicting the cultural dimension of masculinity will negatively moderate the effects of economic empowerment on the percentage of female directors is not supported. Hypothesis 3b has marginal support as the coefficient for the interaction between political empowerment and masculinity is significant at the 10% level (Model 5:  $b = -0.33, p < 0.10$ ).

We also note that the overall  $R^2$  values, and in particular, the values between countries (ranging from 0.69 to 0.71) for each of the models indicate that a high proportion of the variance of the outcome are explained by the independent variables (conditions) we have selected. As previously mentioned, we based our selection of causal conditions on existing research that indicated these variables had independent effects; thus, these results provide some evidence that our choices are appropriate.

### Configurational fsQCA Results

For testing the configurational hypotheses 4a and 4b, we utilize fsQCA to make comparisons between countries to identify whether any of the empowerment or cultural conditions or combinations of conditions are sufficient for either high or low percentages of female directors on boards. If any combinations of conditions are sufficient, it means the outcome of high (low) percentage of female directors will occur whenever those combinations occur.

The fsQCA sufficiency procedure requires setting minimum frequency and consistency values. We used a minimum frequency of four in order to avoid any single country configurations. This frequency allowed us to capture 96%



**Table 1** Average values by country 2010–2016

Country	% female directors	Economic empowerment index	Political empowerment index	Power distance	Masculinity	Stock market value
Australia	16.90	0.766	0.190	36	61	100.48
Austria	14.52	0.640	0.284	11	79	25.99
Belgium	15.44	0.723	0.328	65	54	63.87
Brazil	5.19	0.647	0.102	69	49	49.97
Canada	15.73	0.781	0.197	39	52	115.85
Chile	3.93	0.544	0.234	63	28	111.11
China	8.44	0.676	0.152	80	66	56.66
Colombia	8.80	0.685	0.142	67	64	55.04
Czech Republic	5.72	0.618	0.121	57	57	27.51
Denmark	19.44	0.770	0.365	18	16	80.11
Egypt	4.54	0.451	0.035	70	45	27.08
Finland	27.93	0.776	0.600	33	26	59.43
France	23.56	0.674	0.240	68	43	72.45
Germany	16.96	0.724	0.356	35	66	42.93
Greece	9.57	0.631	0.120	60	57	23.73
Hungary	4.70	0.671	0.054	46	88	16.25
India	7.56	0.416	0.345	77	56	75.89
Indonesia	4.93	0.579	0.137	78	46	43.47
Ireland	13.28	0.742	0.416	28	68	45.54
Israel	16.63	0.677	0.164	13	47	75.24
Italy	14.98	0.592	0.196	50	70	25.60
Japan	2.13	0.583	0.071	54	95	75.79
Luxemburg	5.14	0.755	0.180	60	39	133.58
Malaysia	8.95	0.596	0.054	100	50	143.46
Mexico	6.30	0.535	0.193	81	69	39.33
Netherlands	17.54	0.730	0.339	38	14	81.45
New Zealand	19.41	0.774	0.381	22	58	34.66
Norway	36.95	0.830	0.558	31	8	52.09
Peru	2.28	0.619	0.190	64	42	48.52
Philippines	10.19	0.773	0.346	94	64	78.43
Poland	13.71	0.658	0.183	68	64	33.51
Portugal	5.17	0.686	0.206	63	31	31.49
Russia	5.28	0.730	0.085	93	36	40.47
Singapore	8.15	0.766	0.106	74	48	244.50
South Africa	17.99	0.661	0.398	49	63	241.45
South Korea	1.98	0.516	0.099	40	50	91.59
Spain	12.80	0.640	0.347	57	42	77.35
Sweden	29.26	0.795	0.487	31	5	93.29
Switzerland	11.51	0.750	0.307	34	70	202.15
Thailand	10.09	0.730	0.079	64	34	84.60
Turkey	11.17	0.418	0.087	66	45	28.71
UAE	0.60	0.477	0.122	90	50	43.51
UK	15.96	0.721	0.289	35	66	100.20
USA	14.47	0.805	0.168	40	62	124.40

of the sample, which is well above the recommended minimum of 75% (Ragin 2008). Consistency refers to the extent to which country-year observations with these conditions

or combinations of conditions adhere to either high or low levels of the outcome (e.g., percentage of female directors). We used 0.84 as the consistency threshold, well above the

**Table 2** Calibration Threshold values

Condition	Fully in 75th percentile and above	Mostly in 50th to 75th percentile	Mostly out 25th to 50th percentile	Fully out 25th percentile and below
Percentage of female directors	≥ 16.03	9.70 to 15.85	5.70 to 9.60	≤ 5.89
Economic empowerment	≥ 0.752	0.675 to 0.751	0.604 to 0.674	≤ 0.603
Political empowerment	≥ 0.334	0.185 to 0.332	0.120 to 0.184	≤ 0.118
Power distance	≥ 68.25	57.00 to 67.00	36.00 to 54.00	≤ 35.75
Masculinity	≥ 64.00	51.00 to 63.00	43.00 to 50.00	≤ 42.00
Stock market value	≥ 93.98	62.34 to 92.81	36.98 to 61.33	≤ 37.26

**Table 3** Descriptive statistics and correlations

Measure	Mean	SD	VIF	1	2	3	4	5
1 Percentage of female directors	11.95	8.74						
2 Economic empowerment	0.667	0.107	1.41	0.54*				
3 Political empowerment	0.228	0.142	1.50	0.69*	0.45*			
4 Power distance	54.80	22.20	1.39	- 0.50*	- 0.42*	- 0.48*		
5 Masculinity	50.98	19.25	1.13	- 0.35*	- 0.20*	- 0.34*	0.06	
6 Stock market value	75.76	55.15	1.09	0.07	0.27*	0.10*	- 0.03	- 0.04

\*Designates  $p$  values < 0.05**Table 4** Random effects regression models (DV: percentage of female directors on corporate boards)

Variables	Model 1		Model 2		Model 3		Model 4		Model 5	
	B	SE	B	SE	B	SE	B	SE	B	SE
Economic empowerment	30.566***	5.98	78.88***	17.61	30.01***	5.96	36.52*	17.62	29.62***	5.92
Political empowerment	24.73***	4.45	24.75***	4.41	42.04***	11.70	24.59***	4.45	41.18***	9.99
Power distance	- 0.06 <sup>†</sup>	0.04	0.45*	0.19	0.02	0.06	- 0.05 <sup>†</sup>	0.03	- 0.04	0.03
Masculinity	- 0.05 <sup>†</sup>	0.04	- 0.04	0.04	- 0.03	0.04	0.03	0.23	0.04	0.06
Stock market value	- 0.01	0.01	- 0.01	0.01	- 0.01	0.01	- 0.01	0.01	- 0.01	0.01
Interactions										
Economic empowerment X power distance			- 0.75**	0.271						
Political empowerment X power distance					- 0.331 <sup>†</sup>	0.21				
Economic empowerment X masculinity							- 0.13	0.32		
Political empowerment X masculinity									- 0.33 <sup>†</sup>	0.18
Wald $\chi^2$	127.02***		138.40***		130.76***		128.53***		133.52***	
$R^2$ within	0.15		0.16		0.15		0.14		0.15	
$R^2$ between	0.69		0.71		0.70		0.69		0.70	
$R^2$ overall	0.54		0.56		0.55		0.55		0.55	

N = 298

\*\*\*  $p < 0.0001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ ; <sup>†</sup>  $p < 0.10$ 

recommended minimum value of 0.75 (Ragin 2006) and this level represented a gap in the raw consistency values (Crilly 2010).

Table 5 shows the configurations, which are sufficient for producing either high (configurations 1–5), or low (configurations 6–10) percentages of female directors on corporate boards. We report the intermediate solution from the fsQCA software output as this allows us to distinguish

between *core* and *peripheral* conditions. Using the nomenclature of Ragin and Fiss (2008), solid circles represent the presence (high level) of a condition, while crossed circles denote the absence (low level) of a condition. Large circles represent core conditions while smaller circles indicate they are peripheral conditions. Blanks indicate the condition may be either present (high) or absent (low). In order to use the intermediate solution, we need to provide counterfactuals,

**Table 5** Sufficient configurations for high and low percentage of female directors on corporate boards

Configuration	High percentage of female directors on corporate boards					Low percentage of female directors on corporate boards				
	1	2	3	4	5	6	7	8	9	10
Economic empowerment	●	●	●		●	⊗	⊗		⊗	⊗
Political empowerment	●		●	●	●	⊗	⊗	⊗	⊗	⊗
Power distance	⊗	⊗		⊗		●	●	●		⊗
Masculinity			⊗	●	●		⊗	⊗	●	●
Stock market value		●	●	●	⊗	⊗		⊗	⊗	
Consistency	0.90	0.89	0.93	0.88	0.88	0.85	0.86	0.88	0.85	0.88
Raw Coverage	0.50	0.40	0.23	0.20	0.19	0.36	0.29	0.28	0.26	0.17
Unique Coverage	0.08	0.08	0.02	0.02	0.04	0.02	0.05	0.04	0.01	0.08
Example of country with high membership	Norway	Canada	Sweden	South Africa	Germany	Egypt	Indonesia	Russia	Czech Republic	Hungary
Solution consistency	0.89					0.85				
Solution coverage	0.67					0.55				

Note: ● Presence of condition, large = core/small= peripheral; ⊗ Absence of condition large = core/small= peripheral; blank cells indicate the condition can be either present or absent

which are *a priori* assumptions about how a given individual condition may impact the outcome (Schneider and Wagemann 2013). Based on our regression models, which showed strong statistical significant net effects of economic and political empowerment across all models, we assumed that these two conditions would be present for high percentages of female directors and absent for low values of the outcome.<sup>4</sup>

For both outcomes associated with the percentages of female directors on corporate boards, there are no single condition configurations, thus lending some support for our theorizing that these outcomes arise from combinations of complementary and substitution effects between (dis)empowering forces and (non-)supportive cultural norms. For the high percentage of female directors on corporate boards, each of the configurations includes at least two empowering and/or supportive cultural conditions. Configurations 1 and 3 both have three of the expected facilitating conditions. Both have high economic and political empowerment of females but differ in the presence of supportive cultural norms. In configuration 1, power distance is also low, whereas in configuration 2, masculinity is low. Configuration 1 includes countries that have both small and large stock markets, whereas members of configuration 2 have stock markets with high relative values. Norway is an example of a country that for multiple years has very high membership in configuration 1 and Sweden over multiple years has high membership in configuration 3.

Configurations 2 and 4 both have the supportive cultural norm of low power distance, but it is combined with high economic empowerment in the former and high political empowerment in the latter. Both configurations include countries with high stock market values, though it is only a core condition in configuration 4. Thus, we see low power distance complements the effects of both types of empowerment forces. Countries with high membership in these two configurations include Canada for configuration 2 and South Africa for configuration 4. Configuration 5 has high economic and political empowerment of women along with power distance being either high or low. Interestingly, it also includes high masculinity, which we considered to be non-supportive of modifying gender schema. Germany is an example of a country with high membership in this configuration.

Masculinity was high in configuration 4 also. It may be that the reinforcement effects between high political empowerment and low power distance (configuration 4) as well as those between the two types of empowerment forces (configuration 5) are strong enough to overcome traditional gender schema in highly masculine countries. However, in our theoretical development, we focused specifically on links between masculinity and gender roles, yet this dimension has also been shown to be associated with societal members placing high importance on achievement and assertiveness (Hofstede 1985, 2001). Arguably, as women gain empowerment they may have greater confidence and show assertiveness in seeking out corporate board positions, which could indeed shape schemas about the acceptability of them holding these positions of power. Thus, in these configurations, rather than norms associated with low masculinity having complementarities with empowerment forces, it is norms

<sup>4</sup> Running the analysis without the counterfactuals gave the same patterns of configurations.

associated with high masculinity that are complementing the other empowering and supportive norms, resulting in changes to gender schema and subsequently increases in female directors.

Overall, these results of configurations 1–5, provide support for 4a, which predicted that it would be combinations of high empowerment of females and/or supportive cultural norms that would be sufficient for facilitating high percentages of female directors on corporate boards. Likewise, H4b is supported as there are no single condition configurations leading to low percentages of female directors on corporate boards, and each of the configurations has either a lack of more than one empowering conditions and/or non-supportive cultural norms. Configurations 6, 7, 9, and 10 all have low levels of both economic and political empowerment for women. In 6 and 7, this is combined with the non-supportive cultural norm of high power distance, whereas in 9 and 10, masculinity is high. Configuration 10 also includes low power distance as a non-core condition. The effects of this supportive cultural norm are not strong enough to overcome the mutually reinforcing effects of the disempowering conditions and high masculinity on traditional gender schema. Egypt has high membership in configuration 6, Indonesia is an exemplar of configuration 7, the Czech Republic has strong membership in configuration 9, and Hungary is a country with high membership in configuration 10. Configuration 8 has low political empowerment combined with high power distance. Russia is a country with high membership in this configuration. Interestingly, this configuration also includes low masculinity as a core condition. We had labeled this a supportive cultural norm with respect to changing schema about the appropriate roles of women in power. Low masculinity is also part of configuration 7. It may be that in context with a lack of female empowerment, low masculinity has no influence on cognitions about the appropriateness of women in powerful roles. Like the reasoning for high masculinity complementing high empowerment in configurations 4 and 5, it may be that in societies that do not value assertiveness (low masculinity), these cultural norms reinforce the idea that women should not assert themselves into positions of power, such as being corporate board members.

The fsQCA output also reports consistency and coverage values. The overall solution consistency of 0.89 and coverage of 0.67 for the high outcome configurations indicate that this solution brings about high increases in the percentage of female directors 89% of the time, and accounts for 67% of the instances of the outcome. For the low percentage of female director outcome, the overall consistency is 0.85 and coverage is 0.55. These coverage values are greater than or in line with those of other ethics and governance fsQCA studies (e.g., Bell et al. 2014; Leischnig and Woodside 2017; Prado and Woodside 2015).

However, it should be noted that due to our consistency and frequency thresholds of 0.84 and 4, respectively, there are other configurations below those thresholds that could also be sufficient for high or low percentages of female directors on corporate boards.

The fsQCA *raw* and *unique coverages* indicates how much of the outcome is covered by a given configuration and how much of a given outcome is *only* covered by that configuration, respectively (Schneider and Wagemann 2012). For the outcome associated with a high percentage of female directors on corporate boards, configuration 1 has the highest raw coverage value at 0.50. For the configurations leading to low percentages of female directors on corporate boards, configuration 6 has the highest raw coverage. Comparing these two configurations, we observe that they have the inverse of both empowering conditions and the cultural condition of power distance. The configuration leading to high levels of female directors has high economic and political empowerment along with low power distance, whereas the one leading to low levels has low empowerment and high power distance.

Overall, the results support our mid-range theory that levels of economic and/or political empowerment may modify or sustain societal schemas about the legitimate roles for women when they are combined with the support (or lack of) that arises from the cultural norms of power distance and masculinity existing in a given institutional context. To further unravel the mechanisms underlying the configurations of institutional features, we can determine whether the empowering conditions and cultural norms are complementing one another or serving as substitutes for one another in shaping gender schema about the appropriateness of women holding these positions of power.

Based on the identified configurations, specifically configurations 1, 3, and 5, there appears to be an interplay between economic and political empowerment of women, whereby one influences the other. It may be that they mutually reinforce one another as complements, such that as women gain greater economic privilege that equals that of men in the society, opportunities for involvement in political processes increase. It could also be that when women are politically empowered, they are better able to enact policies and programs that enhance the economic status of women. Having status gains in both arenas may provide further legitimacy concerning the role of women on boards. Alternatively, perhaps, these two institutional forces act as substitutes, compensating for the absence of the other, serving the same function with respect to greater or lesser percentages of women on boards. For example, when women lack economic empowerment, but have high political empowerment, it may be sufficient for influencing the gender schema about women serving in powerful roles, such as directors on corporate boards. In the next section, we inductively explore

**Table 6** Analysis of functionally equivalent necessary conditions

	HIGH percentage of female directors on corporate boards	LOW percentage of female directors on corporate boards
Empowering conditions	Consistency/coverage	Consistency/coverage
Economic empowerment + political empowerment	0.88/0.68	
Economic empowerment + ~power distance	0.87/0.67	
Economic empowerment + ~masculinity	0.87/0.60	
political empowerment + ~power distance	0.86/0.68	
political empowerment + ~masculinity	0.87/0.60	
~power distance + ~masculinity	0.87/0.57	
Lack of empowering conditions		
~Economic empowerment + ~political empowerment		<b>0.90/0.70</b>
~Economic empowerment + power distance		<b>0.91/0.70</b>
~Economic empowerment + masculinity		0.86/0.59
~Political empowerment + power distance		<b>0.91/0.69</b>
~Political empowerment + masculinity		0.89/0.59
Power distance + masculinity		<b>0.93/0.60</b>

~ Represents the negation of the condition

+ Indicates the presence of either condition or of both conditions

Bolded results indicate the presence of either condition or both are necessary for the outcome

which conditions may be substitutes for the two outcomes associated with the percentage of female directors.

### Inductive Exploration of Functionally Equivalent Institutional Forces

To explore whether any of the empowering and cultural conditions are functionally equivalent, such that they substitute for one another, we need to assess whether they are “substitutable necessary conditions” (Ragin and Schneider 2011, p. 163). Drawing from our empirical results, we would expect that some type of empowerment condition, either economic or political along with a supportive cultural condition (low power distance or low masculinity) are necessary for the occurrence of high percentages of female directors, whereas the lack of these conditions is necessary for low percentages of female directors. If a condition is necessary, it must be present for the outcome to occur.

We follow the procedure used by Schneider et al. (2010) to assess functionally equivalent necessary conditions. More specifically, using the fsQCA 2.0 *Necessary Analysis* we test whether the various empowerment and cultural conditions when joined by a logical “or” (+) are necessary for the outcome. Following the precedent in the literature, we use a consistency of 0.90 as the value for *almost always* necessary, as a value of 1.0 would indicate always necessary (Ragin 2006; Schneider et al. 2010). Table 6 shows the results.

For the high percentage of female directors, none of the expressions achieve consistency values of at least 0.90. Therefore, we can conclude that the empowering conditions and cultural norms are not substituting but rather complementing one another in the configurations leading to high board gender diversity. For instance, in configurations 1, 3, and 5, economic and political empowerment are both at high levels and are mutually reinforcing one another in these configurations leading to high percentages of women on corporate boards. The results also show complementarity with respect to low power distance and high economic empowerment (configurations 1 and 2) as well as with high political empowerment (configurations 1 and 4).

For low percentages of female directors, substitution among the institutional conditions is much more prevalent, with several expressions having consistencies above 0.90. Low economic and political empowerment act as functional equivalents as do high power distance and high masculinity. We also find that low economic empowerment and high power distance are functionally equivalent as are low political empowerment and high power distance. The reported coverage values for the functionally equivalent necessary conditions indicate that these conditions are non-trivial and relevant for the occurrence of the outcome. Coverages close to zero would be deemed trivial (Ragin 2006).

We also verified that none of the empowerment or cultural dimensions were individually necessary. For the high percentage of female directors, the conditions of high political empowerment and low power distance had the highest

consistencies with both having values of 0.75. For the low percentage of female directors, high power distance had the highest consistency at 0.79.

## Discussion

The lack of gender diversity on corporate boards around the world continues to be an issue garnering attention in scholarly research, public policy, and in the wider society. The lack of female directors is an important corporate governance issue as gender diversity has been associated with higher ethical and financial performance (Ferreira 2015). It is surprising that as women have made progress in achieving economic and political power relative to men (UN Women 2015), they are not breaking through the glass ceiling of corporate boardrooms around the world. In our mixed methods study, we find support for our theoretical predictions that having greater economic and/or political power provides legitimacy for women to overcome gender schema barriers to the corporate boardrooms. We also find that the shared values, beliefs, and attitudes that constitute the culture within a given national context interact with empowerment forces in ways that affect gender diversity on corporate boards. Overall, this study offers unique insights to research that seeks to understand the nuances of board gender diversity by considering causal effects of elements of the institutional context both for their net effects and in a holistic configurational way.

## Theoretical Contributions

Much of the research to date has relied upon net effects correlation-based techniques and our use of regression analysis largely confirms the findings in previous research that showed direct net-effect relationships between power distance, masculinity, and economic and political empowerment of women with board gender diversity (e.g., Carrasco et al. 2015; Terjesen and Singh 2008). We extend this earlier work by showing there are significant interaction effects between these elements of the institutional context that affect the level of female directors on boards.

Our choice to use a configurational approach with fsQCA was driven by theoretical reasoning, specifically the idea that cultural norms and empowerment forces are intertwined aspects of the institutional context. With our configurational approach using fsQCA, rather than evaluating the net effect of an institutional element on board gender diversity regardless of the levels of other elements (Ragin 2008), we can consider the simultaneous interactions of the institutional conditions in combinations that lead to a given outcome. The findings of our configurational approach with fsQCA contribute several new insights to comparative corporate

governance literature and in particular, that focused on the important issue of board gender diversity.

First, as Haxhi and Aguilera (2017, p. 264) note, fsQCA “allows exploration of the systemic interactions across attributes uncovered by different perspectives” which made it a particularly effective method for integrating gender schema and institutional theories to develop mid-range theory about institutional drivers of board gender diversity. More specifically, our findings highlight that in institutional contexts where female empowerment and supportive national cultural dimensions (i.e., low power distance) mutually reinforce one another, there are multiple causal paths that are sufficient for greater gender diversity on boards. However, when institutional contexts have disempowering forces and non-supportive cultural dimensions (i.e., high power distance), these institutional elements substitute for one another leading to a lack of board gender diversity. This provides a more nuanced understanding of how institutional features shape gender schema that leads to different levels of female representation on corporate boards.

With fsQCA, we compared cases (country-years) on a set of conditions to determine if their presence (high level) or absence (low level) is necessary or sufficient for a given outcome (high or low percentages of female directors on corporate boards). Thus, it allows for the possibility that multiple configurations of causal conditions may exist that explain the same outcome. Indeed, our results revealed five causal paths for each of the outcomes associated with the percentage of female directors on corporate boards. This highlights the notion of equifinality, that is, the idea that there are multiple ways for elements within an institutional context to configure to either facilitate or hinder increases in board gender diversity. The findings also show that causality may be asymmetrical. For example, high percentages of women on boards occur in contexts with both large and small stock markets, depending upon how these conditions combine with other contextual elements. We also see that both high and low masculinity may be part of configurations that lead to both high and low percentages of women on corporate boards. Overall, our configurational results show that progress for women gaining directorships on corporate boards can be explained by more than one institutional configuration, underscoring the causal complexity of the phenomenon.

In addition, the identification of various configurations with complementary and substitutive relationships between empowerment forces and cultural dimensions provides new insights about the interconnectedness of these elements at play in a given institutional context. For example, it is accepted that societal members “are socialized and sanctioned to comply with the obligations and rules attached to their roles” (Schwartz 1999, p. 27). However, we found contrary to our direct effects analysis that high masculinity

can be a cultural norm supportive of greater gender diversity on corporate boards when it is complemented by low power distance and/or high female empowering forces. This emphasizes that with configurational thinking, we can disentangle the simultaneous interdependent relationships between empowerment and cultural conditions to see the unique ways they may complement one another or provide functionally equivalent causal mechanisms.

Our findings also contribute to research that seeks to understand contextual drivers of greater board gender diversity. In particular, our mid-range theory is compatible with findings from a recent study by Brieger et al. (2017), which emphasizes that forces that empower females generate capabilities, inspire motivation, and grant women a level of entitlement that facilitates greater board diversity. Our study adds to this work by drawing attention to the importance of changing gender schemas within a given institutional context, so that these capabilities, motivations, and entitlements generated by empowering forces are supported or not by others in the society.

The results also show that sources of empowerment of women and elements of culture mutually reinforce or complement one another way in ways that enhance board gender diversity, but also in ways that impede the outcome. This is important as it relates to comparative institutional theory, as it suggests synergistic mechanisms between institutional forces may not lead to positive outcomes, but also those, which are detrimental to societal members.

Lastly, our study offers contributions arising from our mixed method design. We highlight that the correlation-based and set-theoretic approaches we used in this study examine different types of causality. Our net effects regression analysis offers insights into the relevance of our causal conditions, whereas the configurational fsQCA provides additional insights by revealing their interconnected nature. Consequently, the findings of our mixed methods design underscore the validity of the idea put forth by other scholars (e.g., Ragin and Rihoux 2004; Vis 2012) that correlation-based and set-theoretic approaches do not have to be mutually exclusive. Rather they can be used together for expanding our understanding of complex comparative phenomenon. We hope future research into other important governance and ethical phenomena will be motivated to do the same.

### Implications for Practice and Policy

The findings from our mixed method analyses also provide insights for firm decision makers and policymakers about possible solutions for addressing the continuing issue of the underrepresentation of women on corporate boards. First, our findings stress the importance of recognizing how the institutional context that corporate boards are embedded in influences schemas about the appropriateness of women

serving in positions of power. This is important for those who have the power to nominate and/or elect females to serve as directors on corporate boards as well as those in political power who wish to see greater diversity in corporate boardrooms around the world. Specifically, our results highlight that disempowering forces and non-supportive cultural forces create contexts that are hindering women from breaking through the glass ceilings of corporate boardrooms. Understanding this may provide motivation to find ways at both the firm level and national level to counteract these forces.

Also, based on our results that showed power distance or lack of empowerment forces (economic and political) constitute substitutable necessary conditions for having low percentages of women on boards, policies directly related to empowering greater numbers of females may be needed. Since national culture is often thought of as a *slow moving institution* (Roland 2004), in countries characterized as being high in power distance, it may be particularly important to enact policy efforts to increase economic and political empowerment of women.

Further, our study may offer guidance to those involved in policy making about the potential effectiveness of hard (e.g., legally binding regulations about quotas) versus soft law (e.g., codes of governance) in dealing with underrepresentation of women on boards. Previous research has shown that legislation associated with corporate board gender quotas affects the level of women serving as corporate directors (Terjesen et al. 2015). However, the policies vary across countries, with some enacting regulations that strictly enforce quotas and others relying upon non-binding types of legislative actions (Terjesen et al. 2015). Further, research has shown that variation in codes of good governance arise from different configurations of institutions and that those based on voluntary measures have greater overall acceptance with stakeholders (Haxhi and Aguilera 2017). Therefore, it may be helpful for policymakers to consider how their institutional context is currently influencing gender schemas and how imposing regulations versus voluntary codes about quotas on female board representation may affect schematic processing of societal members that ultimately sustains equitable representation of women on boards.

### Limitations and Future Research

Our findings should be considered with several limitations in mind. First, our country level sample does not allow us to capture finer grained firm-level measures of our key variables/conditions. Such research would be a welcome enhancement to furthering the theoretical relationships we propose. Utilizing a configurational approach may be particularly useful for exploring multilevel interdependencies between firm attributes and the national context.

Second, the data for our study are archival. Research that can capture actual perceptions about the legitimacy of women playing key roles in corporate boardrooms would add important insights to comparative corporate governance and ethics literature. Using qualitative methods to study this phenomenon would add important knowledge about the effects of institutional forces for board gender diversity.

Third, we focused on two important cultural elements of the institutional environment, which we argued are particularly relevant for changes in gender schema. However, we acknowledge that other institutions may also influence gender schema and have interdependencies with female empowerment. For example, research by Bulloch et al. (2012) showed that the cultural dimensions of performance orientation and in-group collectivism have significant net effects on the proportion of parliamentary seats held by women, which can be an indicator of female political empowerment. Future studies that consider how other elements of culture may configure with empowerment forces would enhance the findings of our study. We note that with fsQCA, the inclusion of additional conditions exponentially increases the level of complexity,<sup>5</sup> thus there are limitations on the number of causal conditions that can be included. Relatedly, although control variables are not a relevant concept in fsQCA (Fiss et al. 2013), they are for regression analysis. Therefore, even though our regression models are explaining a substantial amount of the variance as indicated by the R squared values, we acknowledge that including additional control variables associated with elements of the institutional and macroeconomic context (e.g., regulations or GDP growth) as part of regression estimations may provide further insights for understanding the net effects of our independent variables.

Future research may also consider how our framework would apply to the gender diversity of top management teams around the world. It would be particularly interesting to investigate how the configurations for board gender diversity converge or diverge with those leading to greater gender diversity on top management teams. In addition, previous research using net effects empirical analysis has highlighted the benefits that organizations receive from having higher percentages of women on corporate boards. We suggest new insights about how and why this is the case which could be revealed by employing configurational techniques to further unravel the causal complexity associated with the phenomenon.

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<sup>5</sup> With fsQCA each additional causal condition  $k$ , leads to an exponential increase in the number of possible combinations ( $2^k$ ).

## Compliance with Ethical Standards

**Conflict of interest** Krista B. Lewellyn and Maureen I. Muller-Kahle declare that they have no conflict of interest with respect to the conduct of this research.

**Ethical Approval** This article does not contain any studies with human participants or animals performed by any of the authors.

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