Does it matter where you work? International evidence on female board representation[☆]

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Abstract

Despite intensive research on mandatory quotas, little is know about valuation effects of voluntary female board representation. Using a novel board dataset of 35,000 firms across 53 countries, we find that female board members lead to higher valuations in more developed countries. This result may be explained by a more efficient selection process of female board members in these countries and by investors' anticipation of future quota legislation. Despite the positive valuation effect, women only account for less than 10% of all board positions, which cannot be explained by a country's level of development. Rather, firms located in countries with a more masculine culture tend to appoint fewer female board members. Thus, culture seems to shape the glass ceiling for the voluntary appointment of female board members. Beyond this glass ceiling, however, only the level of development matters.

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1. Introduction

Norway was the first country to introduce a mandatory quota for female board representation. Academic research that analyzed this event came to the conclusion that this quota was detrimental to firms. Ahern and Dittmar (2012), for instance, find the quota led to a decline in firm performance, less experienced boards, and more frequent M&A transactions in non-compliant firms. Similarly, Matsa and Miller (2013) show that Norwegian firms affected by the quota increased relative labor costs as well as employment levels, resulting in lower short-term profits. Bohren and Staubo (2013) argue that the quota was costly because, in order to escape the quota, it pressured firms to delist and change their organizational form.

However, as a quota forces firms to deviate from their optimal board structure, one cannot infer from the above papers that female board members negatively affect firm performance in general. Instead, there is considerable debate on the impact of *voluntary* female board representation. For example, Adams and Ferreira (2009) report a negative impact of female board members on valuation. Lee and James (2007) find that the stock market reacts negatively to the appointment of female CEOs. By contrast, Dezso and Ross (2012) conclude that female representation in top management improves firm performance, especially in innovative firms. Similar results are documented by Carter et al. (2003). Another stream of the literature shows that women and men differ in terms of their behavior on boards (e.g., Adams and Funk, 2012; Huang and Kisgen, 2013).

In this paper, we use a novel international board dataset to examine cross-country differences in the female board representation-performance relation. We find that *voluntary* female board representation and firm valuation are positively correlated. This relation, however, is strongly dependent on a country's level of development. Women on boards add value mainly in more developed countries, i.e., those with higher GDP per capita, more political stability, less corruption, and more press freedom. This result is based on pooled OLS and firm fixed effects regressions and remains robust even after controlling for person-level characteristics such as education and age.

As we find a strong positive relation between female board representation and firm valuation,

we also ask why there are so few female board members. In our dataset, only about 9% of all board members are women. We therefore analyze which country-level factors determine the fraction of female board members. The only factor for which we find a high explanatory power is a country's level of masculinity. Masculinity, according to Geert Hofstede, "represents a preference in society for achievement, heroism, assertiveness and material reward for success"[1]. This suggests that primarily cultural reasons such as assertiveness and competitiveness shape the glass ceiling that prevents women from entering corporate boards (e.g., Gneezy et al., 2003; Hogarth et al., 2012). Culture itself, however, has no impact on the female board representation-performance relation. Thus, women on boards are associated with a valuation premium even in masculine societies. This indicates that the reasons that hinder higher levels of female board representation are different from those that moderate their valuation impact. This finding is in line with Adams and Funk (2012), who argue in a similar context that "there are several reasons why we might expect gender differences to vanish beyond the glass ceiling" (p. 219). Finally, in contrast to culture, a country's level of development has no effect on the presence of women on boards.

We also analyze the mechanisms that lead to higher valuation premia in more developed countries. Our results indicate that the above effect does not stem from a more general preference for diversity in more developed countries. We also find no indication that women on corporate boards in these countries have better abilities (e.g., in terms of higher education). Rather, the selection process of female board members seems to be more effective in well-developed countries. In particular, nepotism plays a minor role there (e.g., Singh, 2008; Terjesen et al., 2009). This leads to improved decision-making and/or monitoring of boards with female board member, resulting also in higher operating performance. Lastly, we find some indication that the anticipation of mandatory quotas in more developed countries leads to a valuation premium in firms with more female board members.

For the empirical analysis, we apply a worldwide sample of non-financial firms obtained from

[1] Cf. www.geert-hofstede.com/dimensions.html.

Thomson Reuters. The dataset covers 53 countries over the 1998 to 2010 period. A graphical illustration of the sample coverage is provided in Figure 1. The advantage of this sample is that firm coverage is very high. Thus, we do not only include the largest listed corporations in a country in our analyses, but also smaller firms. This increases the representativeness of the results and reduces concerns that the results are driven by a country's largest firms, which are often very different from smaller firms because they are more internationally oriented or even cross-listed in other countries. There is also evidence that larger firms appoint more females on their boards (e.g., Adams and Funk, 2012; Huang and Kisgen, 2013). In our dataset, the median firm size, i.e., total assets, is about one-tenth of prior studies focusing on U.S. firms.[2] Board data is available for more than 3,000 firms from the U.S and Japan, and more than 1,000 firms from Australia, Canada, China, India, and the U.K. Data for more than 100 firms is available for another 37 countries. Details about the yearly numbers of observations are provided in Table 1. Overall, the dataset includes about 35,000 publicly listed firms, 250,000 firm-year observations, and 500,000 board members.[3]

To the best of our knowledge, no empirical study focuses on how country-level factors affect the value implications of female board members. There is however, some evidence regarding the question on how such country-level factors influence the fraction of women on boards. Using country-average board quotas for the largest listed firms, Terjesen and Singh (2008) and Grosvold and Brammer (2011) find that country factors play an important role for the presence of women in boards. Applying a sample of firms resided in 22 countries obtained from BoardEx, Adams and Kirchmaier (2012) focus on the impact of female workforce participation. In a related context, Terjesen et al. (2013) examine institutional factors associated with gender quota legislation.

[2]Using BoardEx data, Fracassi and Tate (2012) find that total assets of the medium firm are $US 1,598 million (p. 160). Based on the Corporate Library's Board Analyst database, Bouwman (2011) reports a median firm size of $US 1,901.2 million (p. 2366). The corresponding value in our sample for U.S. firms is $US 190 million.

[3]The high degree of representativeness of our sample also helps to explain why there are relatively few female board members compared to previous studies. This is in line with Adams and Kirchmaier (2012) who draw a similar conclusion based on their international board dataset obtained from BoardEx.

This paper's contribution to the literature is twofold. First, we add to the literature on female board representation and corporate boards in general. Based on our dataset, we provide representative evidence on women on boards around the world. We then identify a pattern in cross-country differences in the female board representation-performance relation and provide evidence on possible mechanisms driving these results. Second, we show that masculinity is a primary determinant of female board representation. This adds to the growing literature on culture and finance (e.g., Stulz and Williamson, 2003; Giannetti and Yafeh, 2012; Guiso et al., 2009; Ahern et al., 2013).

The remainder of this paper is structured as follows. In Section 2, we develop hypotheses. After that, we introduce the dataset as well as the empirical methodology. Regression results regarding the female board representation-performance relation can be found in Section 3. In the following section, we investigate that mechanisms that lead to valuation premiums for firms with female board members in more developed countries. Section 5 summarizes the main results and discusses their implications.

2. Theoretical framework

2.1. Hypotheses

The reasons why firms with women on boards may be valued at a premium or discount relative to those without female board representation have extensively been discussed by prior literature (e.g., Adams and Ferreira, 2009; Dezso and Ross, 2012; Ahern and Dittmar, 2012). By and large, one view is that female board members increase valuation due to higher board diversity. In this regard, board diversity is deemed to improve decision-making, leading to a valuation premium. On the other hand, women may be detrimental to firm valuation because they may be less connected or experienced. Furthermore, female board members may follow different management styles (Adams and Funk, 2012; Huang and Kisgen, 2013), which can positively or negatively affect firm valuation. In this paper, however, we do not focus on general valuation implications of female board members.

In contrast, the focus of this article is on how country-level factors affect performance implications of female board members. Regarding the development of hypotheses for these two aspects, we assign country-level factors to two different groups. The first group is related to *culture*. With respect to a country's culture, we expect that its level of masculinity, as defined by Geert Hofstede, negatively affects the value contribution of female board members. Hofstede states that masculinity "represents a preference in society for achievement, heroism, assertiveness and material reward for success. Society at large is more competitive. Its opposite, femininity, stands for a preference for cooperation, modesty, caring for the weak and quality of life. Society at large is more consensus-oriented."[4]

We expect that the value contribution of women on boards is smaller in masculine societies because dominating values in these countries may be associated with male board members by a significant number of investors. Thus, these investors may reduce their valuation of firms with female board members because they believe that female board members perform worse than men in such an environment.

Hypothesis H1: The value contribution of female board members is negatively associated with a country's level of masculinity.

Similar predictions can be made for Schwartz's mastery dimension (Schwartz, 1994), a country's level of assertiveness according to the Globe Project (House et al., 2004), and selected questions taken from the World Value Survey.[5]

The second group of country-level factors is referred to as *development*. We approximate a country's level of development by its political stability, corruption, press freedom, and GDP per capita. We hypothesize that female board members have a more positive impact on firm valuation in more developed countries. There are at least four reasons for this. First, board diversity in

[4] www.geert-hofstede.com/dimensions.html.

[5] A detailed explanation of all country-level measures employed in this study can be found in Appendix A.

general may be of higher importance for firms operating in more developed countries. Thus, firms with a higher fraction of female board members would be expected to be traded at a premium in well-developed countries. Second, women in these countries may have better abilities, also leading to a more positive valuation impact. This could, for instance, be due to better access to schools and universities in more developed countries. Third, there may be better selection processes for female board members in more developed countries. This does not imply that firms in these countries select women with higher abilities, as argued before. Rather, investors may be more confident that nepotism plays no role in the appointment of female board members in more developed countries, resulting in a "more meritocratic recruitment and promotion process" (Dezso and Ross, 2012, p. 1072). In less developed countries, however, nepotism could well affect the selection of female board members . For example, Terjesen et al. (2009), p. 324, state based on Singh (2008) that "the majority of Jordan's women directors are connected to the controlling or founding family, signaling the importance of "wasta" ("connections")". In contrast, it is unlikely that women belong to the "old boys club" in more developed countries, resulting in higher levels of board independence and *actual* diversity. In this regard, better selection processes of female board members in more developed countries leads to a higher valuation premium. Fourth, investors may consider it to be more likely that more developed countries introduce mandatory quotas in the future. As a consequence, they attribute a value premium to firms which have already appointed female board members voluntarily because these firms will be affected less severely by future quotas (Ahern and Dittmar, 2012).

Hypothesis H2: The value contribution of female board members is positively associated with a country's level of development.

2.2. *Data*

Sample

Our sample comprises public firms from 53 countries. All active and inactive firms covered by Thomson Reuters are included. We exclude all financial firms (SIC code between 6000 and 6999) and those without common stocks. We also remove observations with negative sales, negative common stock, or negative cash dividends. We further drop observations for which losses exceed total assets and cash dividends exceed sales. Furthermore, in regressions, we exclude all firms from Norway after 2004 due to the introduction of the mandatory female board quota in 2008.[6]

Data on board members

Data on corporate boards is also retrieved from Thomson Reuters. The dataset covers executive and non-executive directors as well as senior managers. It comprises information on current and past firm affiliations, age, education, as well as short biographies. To ensure the integrity of the data, some adjustments are made.[7] Our final sample includes about 35,000 publicly listed firms, 250,000 firm-years, and 500,000 board members over the 1998-2010 period. Even after the exclusion of financial firms, our board sample covers about 70% of the worldwide market capitalization of listed firms, which totals $54 trillion in 2010 according to the World Bank.[8]

Table 1 shows the number of observations for each sample country. The U.S. and Japan account

[6]Norway is the only country with a binding gender quota for stock-market listed firms during our sample period. More details on gender quotas in different countries are, for example, provided by Ahern and Dittmar (2012) and Terjesen et al. (2013).

[7]Board data by Thomson Reuters can be biased by M&A transactions. We carefully screen the raw data and eliminate data errors related to M&A transactions. In some cases, Thomson Reuters replaces a target firm's board data with board data of the acquiring firm. Therefore, persons may be affiliated with an acquired firm, although they held no board seat in this firm prior to the acquisition. These observations can easily be identified because both the target and the acquiring firm exhibit the same affiliations consisting of a unique board member identification number, the start and the end date related to the board position, and a short description of that position (e.g., "chief executive officer"). After the identification of these duplicate affiliations, we determine target firms with wrong affiliation data by using the company status footnote (WC00000) from Worldscope, merger data from SDC Platinum, and board member biography information, and remove these firms from the sample.

[8]When we include financial firms, our board sample covers about 89% of the worldwide market capitalization of listed firms in 2010.

for only about one third of our sample observations, which is quite low compared to other large-scale international corporate governance studies.

Female board members

We measure female board representation as the fraction of female board members at the end of the fiscal year (WOMEN). To determine the gender of the persons in our dataset, we follow a four-step procedure.[9] First, we extract gender-indicating titles from the biographies such as "Mr.", "Mrs." or "Ms.". We also search for equivalent Hindu honorific titles such as "Shr." ("Mr.") or "Smt." ("Mrs.") in biographies of Asian board members. In a second step, we search biographies for pronouns such as "he", "she", "him", or "her". Third, we match forenames with gender-specific lists of forenames, carefully paying attention to forenames that are not necessarily gender-specific (e.g., Kim) or whose gender differs across countries (Andrea, for instance, is a female forename in Germany and a male forename in Italy). Finally, we aggregate the results from the previous three steps and manually check differing classifications. We also manually search the gender for persons we could not classify with this approach. Overall, this procedure results in more than 16,000 manual adjustments.

In total, we are able to classify about 450,000 board members (90% of all people in our sample) either as male or female.[10] We then define the main variable WOMEN as the number of women on a firm's board at the fiscal year end date divided by the number of board members for which the gender could be identified. Furthermore, we create the dummy variable WOMEN [DUMMY], which equals one if at least one woman is present on the board at the fiscal year end date and zero otherwise.

Overall, we identify 41,000 female board members in the dataset. Thus, women constitute on average about 9% of all board members per firm-year (median value: 0.06). Table 2 shows

[9] A similar approach has been employed by Ahern and Dittmar (2012).

[10] We repeat all our main analyses and (i) remove all observations from countries where the gender for less than 90% of all board members could be identified or (ii) assume that gender is split 50:50 among the non-classified board members of a firm. The results, which are available upon request, remain robust to these two alternative specifications.

the fraction of female board members for each sample country, while Table 3 provides aggregate summary statistics. Correlation coefficients for the main variables can be found in Appendix B. A graphical illustration is depicted in Figure 1. As can be seen, the sample covers the majority of countries in all continents, except for Africa and Antarctica. Furthermore, the figure demonstrates that the fraction of female board members varies heavily across countries. In Norway, for instance, about 19% of all board members are women. This number is lower than the quota of 40% which was introduced in 2008 because our sample period already starts in 1998. Furthermore, this effect is also driven by the design of the Norwegian quota, which only affects directors, while we consider both directors and senior managers.

Figure 2 provides a graphical illustration of the fraction of women in boards over time. As can be seen, the fraction of female board members increased slightly from below 8% to above 9% between 1998 and 2010. Thus, there is a small positive trend. Nevertheless, even in 2010 women constitute less than 10% of all board members.

We also provide evidence that female board representation is lower compared to previous studies because these studies are tilted toward large firms. Based on data by the European Commission, Desvaux et al. (2007) show that women held about 11% of the seats in the governing bodies of the top 50 listed companies in 13 European countries in 2006. Based on our data, which include 5,480 firms in 11 European countries in 2006, we find that women represented only about 9% of all board members.[11] Thus, focusing on the largest firms may lead to an overestimation of general female board representation.

Directors vs. senior managers and data quality

Our main board definition takes both executive and non-executive directors as well as senior managers into account. Most prior studies on corporate boards in the U.S. focus on directors and

[11] In contrast to the study by Desvaux et al. (2007), we do not cover Latvian and Bulgarian firms. If one calculated the average female board representation based on single-country averages reported in Desvaux et al. (2007), average female board representation amounts to 12% in the other 11 countries.

ignore senior managers. The distinction between directors and managers is, however, very difficult and often not straightforward in an international context as board structures differ heavily across countries. Nevertheless, we manually classify all people in our dataset according to their role description as either director or (non-director) senior manager.[12] After that, we re-calculate the fraction of female board members, but now consider only directors (WOMEN [DIRECTOR]). Table 3 shows that with an average fraction of about 6.8% of all directors, female representation among directors is even lower than among all board members. Not surprisingly, it can also be seen that average board size declines from about 12 to 6.5 if only directors are considered.

For the U.S., the average board of directors in our sample has 7.12 members (median: 7). These figures are comparable to the ones shown in other studies such as Yermack (1996) and Coles et al. (2008). In the U.K., a firm had on average 6.01 directors appointed during our sample period. Again, these values are very close to other single-country studies such as Dahya et al. (2002) and Guest (2008). Furthermore, there have been on average 8.93% female directors in the largest U.S. firms over the 1998 to 2003 period in our sample, which is very close to 8.5% women directors as reported by Adams and Ferreira (2009) for a dataset of 1,939 U.S. firms over the 1996 to 2003 period.[13] The average age of directors in U.S. firms (56.6 years) is also close the mean age of 58.9 years reported in their study. Overall, these comparisons suggest that, at least with respect to firms from the U.S. and the U.K., data quality is similar to previous studies based on other data sources.

Country-level data

As explained in Section 2.1, country-level variables are assigned to two groups: culture and development. Within the first group, we focus on the level of masculinity according to Geert

[12] If a role description contains the term "director", we normally classify the affiliation as a director affiliation. An exception is, for example, the role "director of finance", which would be classified as manager. Similarly, a role description such as "general manager" would also be classified as manager. Other examples for managers are "managing director" or "director, Asia".

[13] To ensure that our dataset is comparable to the one by Adams and Ferreira (2009), we end our sample period after 2003 and select only U.S. firms with sales exceeding $500 million so that we arrive at firms of that are of about the same size as the firms in Adams and Ferreira (2009).

Hofstede. Consequently, the first measure is Hofstede's masculinity index (Hofstede, 1980), denoted by HOFSTEDE_MAS. Furthermore, we also apply the Schwartz (1994) proxy for a country's level of mastery (SCHWARTZ_MASTERY), its level of assertiveness (GLOBE_ASS) according to the Globe project (House et al., 2004), and one question by the World Value Survey as robustness tests (WVS_INCOME_GAP). This question measures whether people think that it is problematic if a women earns more than her husband.

As primary measure for *development*, we apply a country's level of POLITICAL STABILITY according to Kaufmann et al. (2009). Alternatively, we rely on the PRESS FREEDOM index developed by Freedom House, and the corruption perceptions index developed by Transparency International (ANTI-CORRUPTION). Summary statistics for the main country-level variables can be found in Table 4.

Other firm-level data

Firm-level accounting and capital market data comes from Thomson Reuters Worldscope. Summary statistics for firm financial variables are provided in Table 3. The definitions of all variables as well as their sources can be found in Appendix A. All the variables based on financial data are winsorized annually at the 1% level to mitigate the effects of outliers.

Panel A of Table 5 reports mean firm characteristics for firms with no female board members and firms with at least one female board member. Firms with female board members are on average higher valued, larger, and less leveraged. Not surprisingly, female board members are more likely when firms and their boards are larger. The average board size of a firm with female board members is about 14, whereas the average board size of firms with only male board members is about 9. All these differences are highly significant with absolute t-values exceeding 10.

Education, age, and busyness

To control for education, we construct education variables for each person for which data on the obtained study degree is available (about 110,000 people). In particular, we calculate whether

a board member holds a MBA, a Ph.D., or a master's degree. Panel B of Table 5 shows that male board members are less likely to hold a master's degree, but are more likely to have a MBA or a Ph.D.

We further construct an education index. This index equals one if a person has a bachelor's degree, two for a master's degree, three for a MBA, and four for a Ph.D. Overall, the average level of education of men is higher than that of women in our sample. Although educational differences between men and women are statistically significant at the 1%-level, absolute differences in educational levels are economically small. Furthermore, when reported by Thomson Reuters, we calculate the age of each board member in each sample year. Female board members are younger (mean age 49.5 years) than men on boards (mean age 54.1 years). This difference is both economically and statistically significant. Finally, for each board member, we determine the number of simultaneously held board seats (BUSYNESS). It appears that male board members hold more positions than women at the same time.

2.3. Methodology

To test whether and how women on boards affect firm valuation, we apply pooled OLS and firm fixed effects regression. Firm fixed effects models offer the strong advantage that they control for any time-invariant omitted variables which may bias OLS results. This is of particular importance in an international corporate governance study.

The main dependent variable is TOBIN's Q. Independent (control) variables are lagged by one year to reduce the possibility of biased coefficients due to reverse causality. OLS models also include year, industry, and country fixed effects.[14] In firm fixed effects models, we additionally control for time effects. To account for time-variant differences in economic activity across the sample countries, we also include GDP per capita as an additional control variable. Huber / White robust standard errors clustered by firms and countries are further employed in all models (Pe-

[14]Industry dummies are based on the 49 industry portfolios defined by Fama and French. See http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/.

tersen, 2009; Cameron et al., 2011; Thompson, 2011).[15] All variables used in interaction terms are demeaned in the respective models. The construction of all variables is explained in detail in Appendix A.

3. Value implications

In this section, we analyze how female board representation affects firm valuation. After an evaluation of the general impact of female board members on firm value, we focus on how country-level factors influence this relationship.

3.1. General implications

Results for general value implications of female board members are presented in Table 6. Model Ia represents a pooled OLS regression with year, industry, and country-fixed effects. Overall, we find a positive and significant coefficient for the WOMEN variable. The size of the coefficient suggests that a firm with 50% female board members has a TOBIN'S Q which is over 0.1 higher than an otherwise identical firm with only male board members. This is more than 5% of the average TOBIN'S Q in our sample, underlining the economic significance of the relation. Model Ib shows the outcome of a firm fixed effects regression. Again, women on boards are positively related with firm valuation. With regard to the control variables, profitability, growth, and GDP per capita have a positive impact on TOBIN'S Q in both models. Size and tangibility exhibit a consistently negative impact. Thus, these results indicate that firm valuation is positively associated with women on corporate boards. This relation is robust to the inclusion of unobserved time-invariant firm characteristics.

3.2. The impact of country-level factors

In this section, we analyze how country-level factors affect the valuation implications of female board members. As explained in Section 2.1, we distinguish between factors related to a country's

[15] The results are robust to one-way clustering at the firm- or country-level.

culture and level of development.

Regression results can be found in Models II and III of Table 6. In each model, we interact one variable of the two groups with the fraction of female board members. Year, industry, and country fixed effects are included in all models. Models referred to as (a) are pooled OLS regressions and those referred to as (b) firm fixed effects models. Only the interaction terms with a country's level of development have a significant impact on valuation. In particular, we find that female board members have a more positive impact on firm valuation in more developed countries, as indicated by the positive and significant coefficient for the interaction of WOMEN and political stability. Examples for countries with a highly positive valuation impact of women on boards are Belgium, Canada, New Zealand, Norway (before the introduction of the quota), Spain, Switzerland, or the U.S. All these countries are highly developed. This provides evidence in favor for Hypothesis H2. With regard to masculinity, we find no consistent impact. Thus, Hypothesis H1 has to be rejected and we conclude that female board representation increases firm value, independent of a country's culture. In contrast, female board members have a more positive effect in more developed countries.

Firm fixed effects regressions help to avoid omitted variable bias. However, they cannot alleviate concerns regarding reverse causality. In this paper, we are mainly interested in cross-country differences in the impact of female board members on valuation. Thus, our reasoning is based on interaction terms between female board members and country-level variables. As country-level factors are hardly influenced by firm-level valuation, this effect is less prone to reverse causality than the main effect of women on boards on valuation. Nevertheless, there may be some selection as the appointment of women on boards may again depend on country-level factors. However, as we will show in Section 4.1, female board representation does not depend on a country's level of development. Thus, we argue that the more positive valuation impact of female directors in more developed countries is unlikely to be driven by reverse causality.

Robustness

As a first robustness test, we repeat our regressions from Table 6 and replace political stability by alternative proxies for a country's level of development. These are PRESS FREEDOM and ANTI-CORRUPTION. In addition, we also use GDP PER CAPITA as another measure for development, although we employ the variable already as a control variable to capture time-variant differences in economic activity across the sample countries. Nevertheless, the variable is also likely to capture a country's level of development. Results are reported in Table 7. Again, we find strong support for the notion that female board members create more value in more developed countries. Interaction terms based on other country-level variables for culture are reported in Appendix C. As expected, there is no evidence for a systematic influence of culture on the female board member-valuation relationship.

Further robustness tests are presented in Table 8. In Model I, we replace WOMEN with a dummy variable indicating whether there exists at least one female board member. Again, we find that the positive relation between female board members and firm valuation is more pronounced in more developed countries. An alternative board definition is applied in Model II. In this specification, we only consider directors, as discussed in Section 3. The results are, very similar to those obtained from the main regressions. Thus, we argue that different board definitions do not alter our results.

In the remainder of Table 8, we additionally control for a board member's personal characteristics. This may be of crucial importance as the descriptive analysis in Section 2.2 revealed differences in education, age, and busyness of male and female board members. Omitting these factors can hence lead to biased results, e.g., because female board members are on average younger and younger board members may lead to higher firm valuation. As controlling for education, age, and busyness of individual persons in firm-level regression is not straightforward, we perform person-level regressions.[16] To this end, we observe each board member in each year and in each firm he

[16]Including average board education, average age, and busyness in firm-level regressions confirms the findings in previous subsections. However, previous results may be driven by differences in age, education, and busyness within a board even after controlling for average board characteristics.

or she is active. Education is approximated by an index which equals one if the person holds a bachelor's degree, two for master's degree, three for a MBA, and four for a PhD. The variable is not defined for persons with missing information on educational background. Age is the age of a board member in a given year. Busyness is the number of outside positions a board member holds at firm's fiscal year end date.

In Model IIIa, we report a person-level regression without controls for education, age, and busyness. As expected, female board members have a higher positive impact on firm valuation in more developed countries. If we include the variables for education, age, and busyness (Model IIIb), the number of observations drops from about two million to 300,000, mainly because of missing data on board member education. However, the results confirm prior findings. The interaction term based on the female dummy (GENDER) and country development is even stronger after the inclusion of these additional control variables. Furthermore, we find some evidence that higher levels of education and lower age are positively associated with higher firm valuation.

4. Determinants and mechanisms

The preceding section established a positive link between female board representation and firm valuation, with the association being stronger in more developed countries. In this section, we first seek to understand why, despite of this result, the average fraction of female board members is relatively low in most countries (less than 10% on average, cf. Table 2). After that, we provide evidence of possible underlying mechanisms behind the higher positive valuation effect of female board members in more developed countries.

4.1. Determinants

In Table 9, we regress WOMEN on firm characteristics and country-level factors to investigate whether a country's level of development and its culture exert an influence on the appointment of female board members. The first two columns of Table 9 show how firm-specific factors affect

the fraction of female board members. Consistent across both models, we only find a negative impact of GDP growth on female board representation. Interestingly, firm size—like all other firm-specific variables—seems to play no role for the fraction of female board members.

Next, we include one variable for culture and development, respectively. Model II suggests that only culture has a significant impact on female board representation. Our proxy for development turns out to be insignificant. Thus, the fraction of women on boards seems to be strongly correlated with a country's culture, i.e., its level of masculinity. The impact of culture is also of high economic significance. The fraction of female board members increases by about 2.5% in absolute terms if masculinity decreases by one standard deviation. As the average fraction of women on boards is about 9%, this represents a relative change of about one third. Furthermore, including country dummies in Model Ia leads to a R^2 of 0.16. Replacing the country-level factors with our measure for culture leads to a drop of R^2 to 0.12. A model with only firm-specific control variables leads to an R^2 of about 0.06 (not reported). Thus, about half of the additional explanatory power due to country factors is related to our measure of a country's culture. We also calculate the fraction of firms with at least one female board member for more masculine (i.e., above median) and less masculine (i.e., below median) countries. In more masculine countries, female board members are present in about 39% of all firm-years in our sample. The corresponding number for the less masculine countries is about 59%. Thus, there is a 20% gap between more and less masculine countries, once more underlining the economic impact of culture on the presence of women on boards.

Robustness tests

The negative impact of masculinity on female board representation holds also true when we apply person-level regressions as performed in Section 3.2 and control for age, education, and busyness (results not reported). Furthermore, we investigate several alternative country-level determi-

nants. Among these are investor protection, religion, political orientation, and gender inequality.[17] However, non-reported results indicate that these factors have no significant explanatory power with respect to the presence of women in corporate boards beyond culture.

In Appendix D, we include other proxies for a country's culture (Model I). All these proxies are highly significant and point in the same direction as Hofstede's masculinity index. Thus, this test reduces concerns that our results are specific to only one index for a country's culture. Model II suggests that masculinity remains highly significant after controlling for measures of development. There is also no evidence in favor of a consistent effect of development on the fraction of female board members. In Model III, we only consider directors (see Section 2.2. Again, we find a strong and negative impact of a country's level of masculinity on the fraction of female directors. Overall, it appears that masculinity hinders higher female board representation. Besides, there is no evidence that there are more female board members in more developed countries.

Discussion

To summarize, we find that a country's culture has a strong impact on the likelihood of an appointment of a female board member, while a country's level of development is not found to have any impact. With respect to the the level of development, this is surprising because women have a more positive effect on performance in more developed countries. In contrast, the main determinant for female board representation, i.e., culture, has no impact on women's valuation implications, as suggested by the evidence in the last section. Thus, if women are appointed as board members in more masculine countries, they have on average the same positive impact on firm valuation as in less masculine countries. Their appointment in such countries is, however,

[17] To control for religion, we first focus on the fraction of Catholics, Muslims, and Protestants in a country. Necessary data is obtained from Stulz and Williamson (2003) and the CIA Factbook. Furthermore, we analyze the impact of the importance of religion in a country. This information is obtained from the Gallup Poll in which people are asked whether religion is important in their lives. Data on chief executive party orientation, i.e., left, center, or right, is retrieved from the Database of Political Institutions by the World Bank. As a measure for gender inequality we employ the United Nations Development Programme (UNDP) Gender Inequality Index. It covers the dimensions reproductive health, empowerment, and labor market.

less likely. Figure 3 summarizes the relationship between female board representation, Hofstede's masculinity index, and political stability. Figure 4 shows the same results for alternative measures for culture and development.

4.2. Mechanisms

Next, we aim to shed light on the mechanisms behind the higher valuation impact of female board members in more developed countries. To this end, we focus on four possible channels (cf. Section 2.1).

Diversity

It is possible that there is a general preference for diversity in more developed countries (e.g., because of increased media awareness). This would result in higher firm valuations for firms with higher levels of diversity in terms of female board representation in these countries. To test this possible explanation, we calculate another measure for board-level diversity that is related to board members' age: AGE DIVERSITY. This variable is defined as the standard deviation of all board members' age in a given fiscal year (e.g., Tony Simons and Smith, 1999; Li et al., 2011). In Model Ia of Table 10, we do not find any evidence that firms with more age-diverse boards yield a valuation premium in more developed countries. Modell Ib indicates that the valuation premium for boards with female members in more developed countries also holds, once one controls for diversity in terms of board member age. Thus, the results in Models I suggests that the more positive relation between performance and female board representation in more developed countries does not stem from a general preference for diverse boards in more developed countries. Instead, the effect only applies to female board representation.

Relative board member quality

We next analyze whether the prior findings stem from cross-country differences in the quality of female board members. Unfortunately, a direct assessment of a board member's skills is empirically difficult. We therefore approximate ability by looking at age, the highest university degree,

and the number of simultaneously held outside positions (Fama and Jensen, 1983). Thereby, we assume that ability is positively correlated to these three variables. In untabulated results, we do not find any evidence that women in more developed countries are of different age, better educated, or have more board memberships than women in less developed countries. We therefore conclude that differences in the quality of female board members cannot explain our results.

Selection process

In addition, we examine whether the above findings can be attributed to differences in the selection process of female board members beyond their abilities. In particular, female board members may be less valuable if their selection depends on connections to previous board members and/or owners ("nepotism"). In contrast, they may be especially valuable if they are unconnected to previous board members because in this case they can increase board diversity and improve corporate decision-making as well as monitoring. Terjesen et al. (2009) and Singh (2008), for instance, argue that the selection of female officers and directors in less developed countries may be driven by their connections to the firm.

To approximate whether the selection of female board members is related to connections, we calculate a dummy variable, DOUBLE NAME, which equals one if there is another board member with the same surname and zero otherwise. The variable is then employed in person-level regressions. Results are displayed in Model IIa of Table 10. It appears that women with a common surname have no positive valuation effect because the coefficients for the female dummy and the interaction term based on the female dummy and DOUBLE NAME amount to 0.035 and -0.037, respectively. In Model IIb, we exclude all male board members from the sample. Again, we find that duplicate surnames are negatively related to firm value, which confirms the result in Model IIa. Thus, less efficient selection processes could explain our prior findings if nepotism is more pronounced in less developed countries. In untabulated results we indeed find that board members with the same surnames are less likely in more developed countries.

If selection plays a role for our results, we would also expect that women perform better in

higher developed countries. Thus, we analyze firms' operating performance in a next step. In Model III of Table 10, we therefore replace TOBIN'S Q with the ratio of earnings before interest and taxes to by total assets (PROFITABILITY). Both in the OLS and firm fixed effects model, we find a higher positive relation between female board representation and operating performance in more developed countries.[18] Thus, dependent on the level of a country's development, female board members contribute differently to operating performance, which provides further evidence for a better selection of female board members in these countries.

Quota announcement

In the last part of this section, we discuss another mechanism that may result in a more positive relation between firm valuation and female board representation in more developed countries. In particular, we hypothesize that investors consider the introduction of a mandatory quota to be more likely in more developed countries. Thus, they might attribute a value premium to firms that have already appointed female board members voluntarily. As they consider the introduction of such a quota to be less likely in less developed countries, this valuation premium would only apply to more developed countries, which could also explain higher firm valuations of firms with female board members in more developed countries.

To shed light on this possible mechanism, Table 11 shows coefficients for the WOMEN variable, obtained from country-specific TOBIN'S Q regressions of Model Ia in Table 6. In the table, countries such as Belgium, Norway (before the introduction of the quota), and Spain exhibit the largest coefficients. These countries are exactly the ones that have passed a mandatory quota for female board members during our sample period or shortly after (e.g., Ahern et al., 2013; Terjesen et al., 2013).[19] It may thus well be that investors anticipated the introduction of a quota and put a higher value on firms with female board members.[20] This mechanism, of course, cannot explain a higher

[18] The results are similar for alternative measures of development. We do not find any cross-country effects related to differences in culture.

[19] Also note, that in 2002, Belgium already mandated quota-laws regarding political election lists

[20] This is in line with Ahern et al. (2013) who argue based on the example of Norway that the introduction of

operating performance associated with female board members in more developed countries.

Overall, we conclude that both a general preference for diverse boards and higher quality of female board members in more developed countries are not likely to cause our findings. By contrast, we find evidence that the selection process of female board members is more efficient in these countries. Lastly, a higher probability of mandatory quotas in more developed countries is also a likely driver of higher valuation effects of women on boards.

5. Conclusion

In this paper, we analyze how country-level factors affect valuation implications of female board members. For this, a novel dataset covering about 35,000 listed firms from 53 countries and half a million board members is used. This dataset does not only cover the largest firms in a country, but also medium-sized companies. This is illustrated by the fact that it comprises more than 1,000 different firms resided in seven sample countries.

We find that the positive valuation impact of women is more pronounced in more developed countries. This result is based on pooled OLS and firm fixed effects regressions and remains robust even after controlling for board members' education, age, and busyness. In this regard, it is surprising that the average fraction of female board members is relatively low in most countries (less than 10% on average). Thus, we analyze which country-factors determine female board representation. The only factor for which we find a strong impact is culture. Firms located in countries with a more masculine culture tend to appoint less female board members. Surprisingly, a country's level of development has no impact on the fraction of women on boards. Culture, on the other hand, has no impact on the relation between female board members and firm valuation, which, however, is driven by a country's level of economic development.

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the quota was already discussed in Parliament in the years before the (surprising) announcement on February 22, 2002. When the quota was finally announced, firms with no female directors have then been penalized with negative abnormal returns. Due to the ongoing in debate in Parliament, however, investors may already have expected that a quota would eventually be signed into law.

To shed light on the underlying mechanisms that result in this finding, we perform several additional tests. There is no evidence for a general preference for diverse boards or higher abilities of female board members in more developed countries. Results, however, indicate that the board member selection process is more efficient in highly developed countries because there is less board-level nepotism in these countries. Consequently, female board members are also associated with higher levels of operating performance in more developed countries. There is also some evidence that our results are related to investors' anticipation of the introduction of mandatory quotas in more developed countries.

These results have several implications because they indicate that voluntary female board members can increase firm valuation in more developed countries. Nevertheless, this finding does not necessarily imply that mandatory quotas are beneficial for firms since we look at voluntary female board representation only. Prior empirical evidence even suggests that quotas reduce firm value (Ahern and Dittmar, 2012; Matsa and Miller, 2013). Instead, our results indicate that cultural reasons hinder firms from voluntarily appointing more women to their boards. To deal with relative female underrepresentation on corporate boards effectively, it may hence be more helpful to better understand the underlying drivers than to simply introduce a quota. Changing the attitude of firms' decisions-makers may help to increase female board representation, even without mandatory quotas. This may be especially promising in countries that are characterized by high levels of masculinity. Appointing female board members also seems to be a rational decision for firms located in these countries because female board members are associated with a higher firm value, independent of a country's culture. The strongest positive effect on firm valuation, however, can be realized by firms located in well-developed countries. Thus, informing firms about the circumstances in which women on boards create value may be a reasonable alternative to mandatory quotas.

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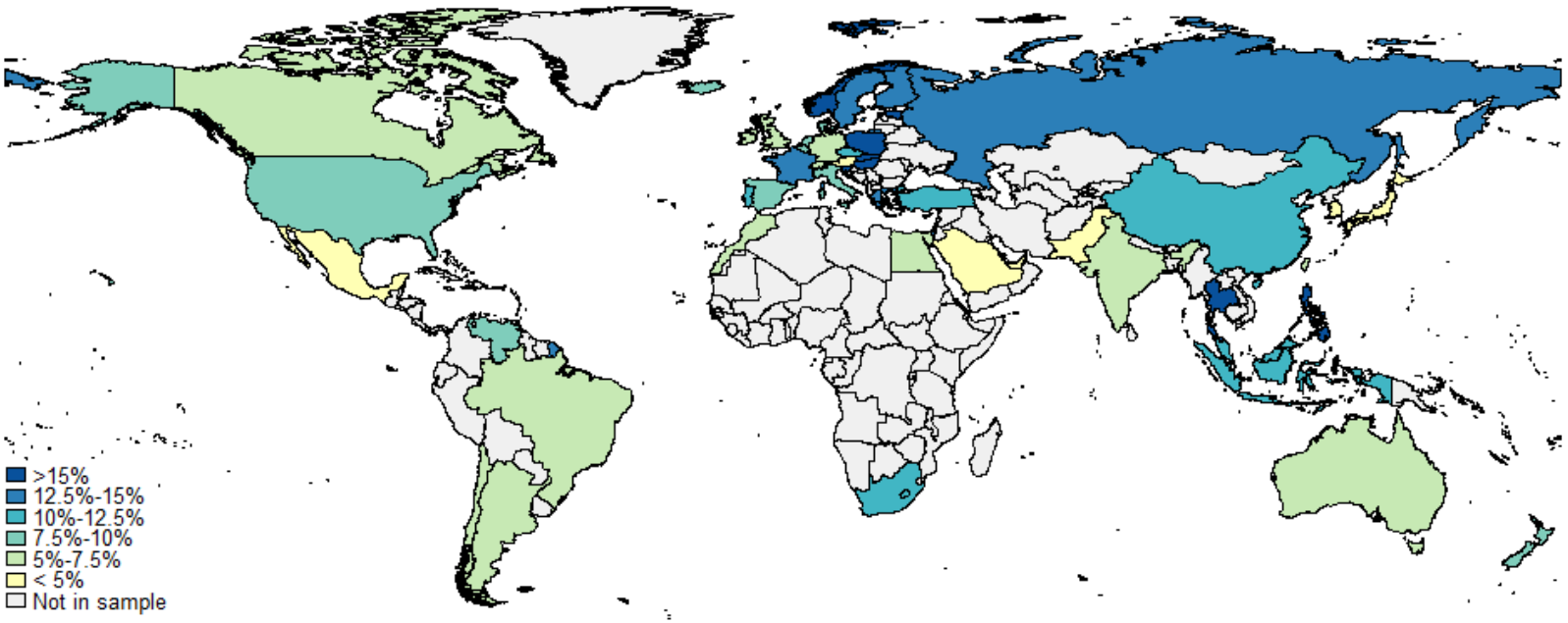

Figure 1: The figure shows the countries included in the sample and the average fraction of women on corporate boards (WOMEN) over the 1998-2010 period across all firms within that country.

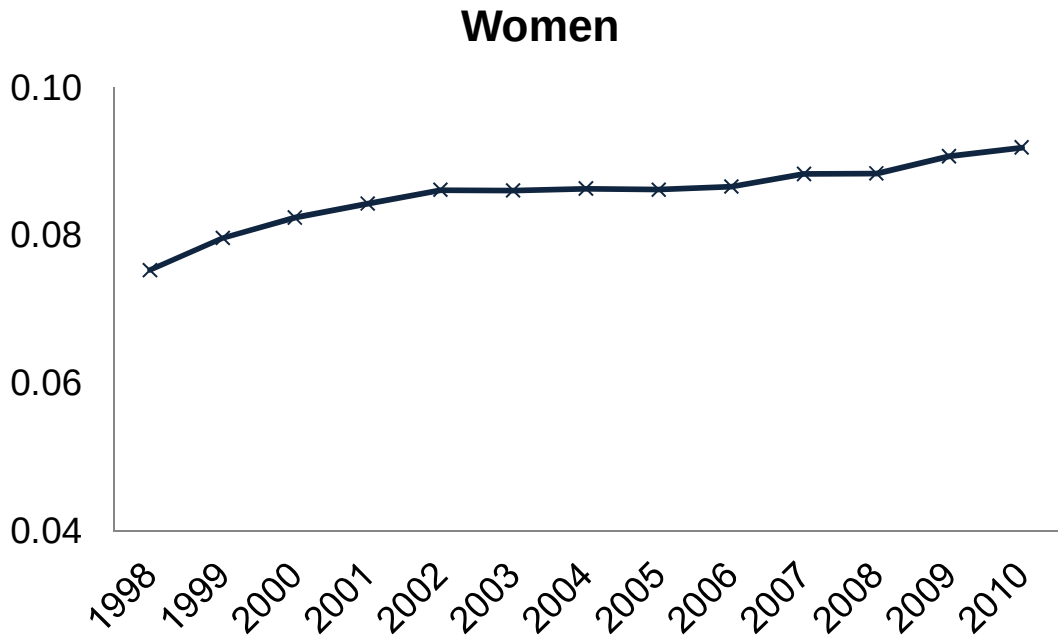

Figure 2: The figure shows the average fraction of women on corporate boards (WOMEN) over the 1998-2010 period across all sample firms.

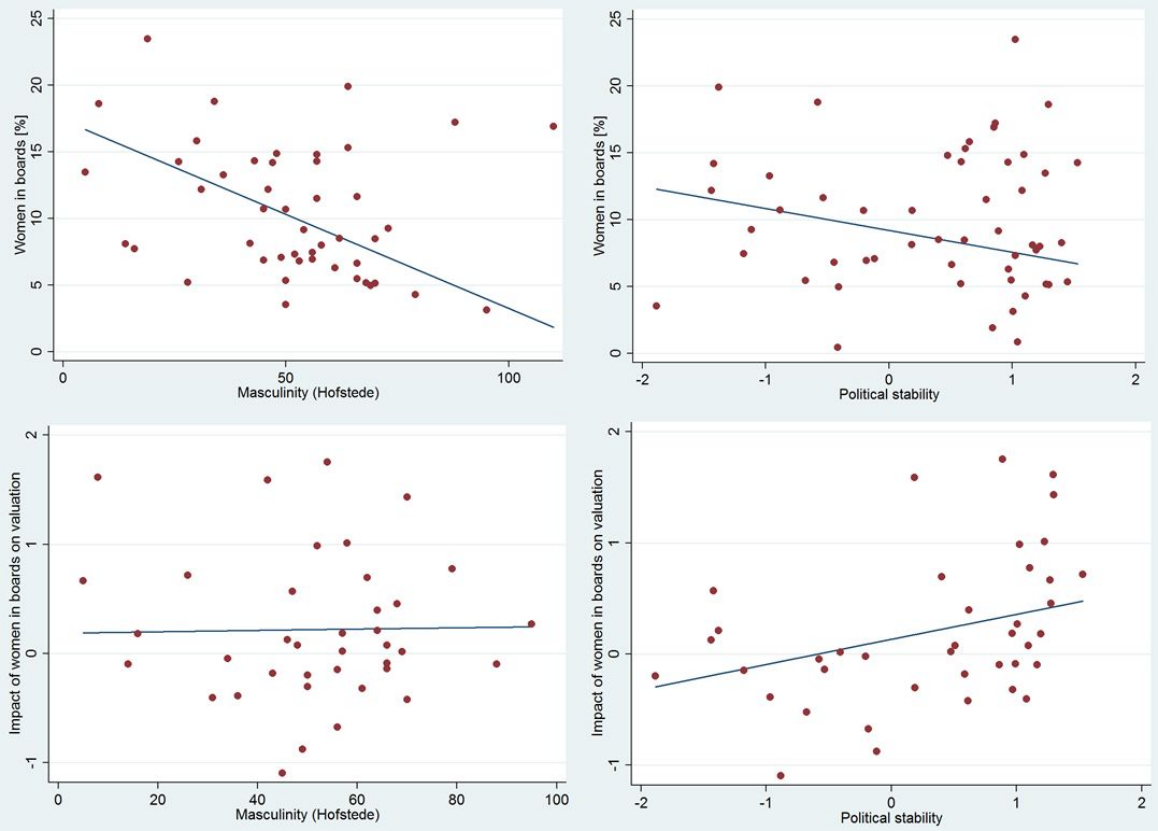

Figure 3: The upper graphs show how a country's culture (measured by HOFSTEDE_MAS) and its level of economic development (measured by POLITICAL STABILITY) are correlated with the average fraction of women on boards (WOMEN). Each dot corresponds to a country. The lower graphs display the average valuation effect of women on boards for different levels of HOFSTEDE_MAS and POLITICAL STABILITY, obtained from country-specific regressions of TOBIN'S Q on WOMEN (Model Ia, Table 6). Each dot represents the regression coefficient for WOMEN in the respective country in these two graphs. Only countries in which female board members are present in more than 200 firm-years are considered.

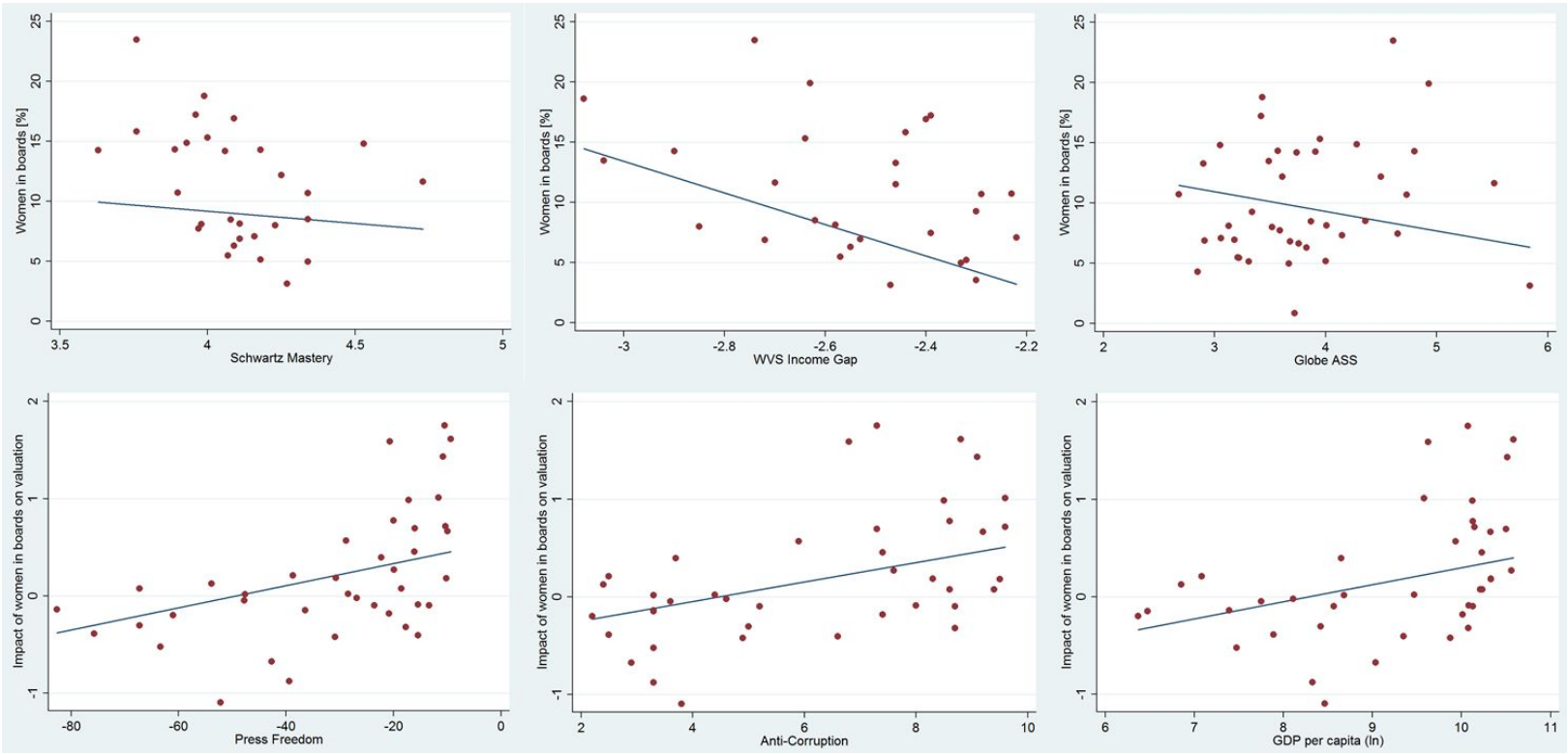

Figure 4: The upper graphs show how alternative measures of a country's culture are correlated with the average fraction of women on boards (WOMEN). Each dot corresponds to a country. The lower graphs display the average valuation effect of women on boards for different levels of development, obtained from country-specific regressions of TOBIN's Q on WOMEN (Model Ia, Table 6). Each dot represents the regression coefficient for WOMEN in the respective country in these graphs. Only countries in which female board members are present in more than 200 firm-years are considered..

Table 1: Number of board observations across countries and years.

Country	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
Argentina	41	55	57	60	56	61	58	59	61	60	55	55	54	732
Australia	316	532	764	793	834	985	1,061	1,188	1,321	1,313	1,195	1,291	1,247	12,840
Austria	63	64	69	69	68	64	63	63	64	62	62	59	54	824
Belgium	74	73	72	76	80	84	97	100	105	104	95	94	90	1,144
Brazil	25	54	56	55	58	78	97	100	105	108	106	107	106	1,055
Canada	361	487	540	585	703	804	908	987	1,061	1,105	997	969	920	10,427
Chile	78	113	116	116	127	135	139	143	142	138	137	135	132	1,651
China	132	964	1,021	1,062	1,286	1,423	1,500	1,497	1,561	1,724	1,832	1,991	2,008	18,001
Czech Republic	15	16	18	18	18	20	28	21	20	16	13	13	12	228
Denmark	90	92	98	94	97	93	102	113	111	113	112	100	100	1,315
Egypt	5	6	12	17	25	31	54	91	100	106	106	102	89	744
Estonia					1	6	7	8	9	9	9	9	9	67
Finland	94	97	106	104	105	107	110	112	109	109	110	107	105	1,375
France	517	548	558	553	569	576	578	613	623	622	589	557	519	7,422
Germany	503	532	568	544	529	545	565	598	604	585	552	532	495	7,152
Greece	150	190	224	241	244	245	256	252	252	255	241	234	210	2,994
Hong Kong	278	372	586	635	678	713	738	744	759	781	755	756	768	8,563
Hungary	18	20	21	21	20	23	25	27	30	30	29	29	29	322
Iceland					4	6	8	8	8	7	4	3	3	51
India	265	318	347	358	446	593	663	1,709	1,829	1,856	1,850	1,844	1,763	13,841
Indonesia	97	136	172	185	205	220	229	244	253	277	285	286	283	2,872
Ireland	42	43	45	42	46	47	49	58	59	60	52	52	46	641
Israel	39	52	78	85	102	138	141	151	170	176	169	163	158	1,622
Italy	136	157	165	173	179	189	205	215	216	214	210	198	192	2,449
Japan	2,274	2,384	2,645	2,783	2,930	3,101	3,249	3,318	3,350	3,371	3,345	3,312	3,270	39,332
Luxembourg	14	14	18	16	19	17	19	22	23	23	24	21	22	252
Malaysia	271	359	531	567	667	762	813	847	853	849	829	817	796	8,961
Mexico	82	90	94	93	93	95	93	94	98	93	89	89	88	1,191
Morocco	3	7	9	11	13	15	19	20	29	28	29	28	27	238
Netherlands	81	86	83	85	86	89	92	97	95	92	86	83	81	1,136
New Zealand	43	57	72	75	80	92	100	102	108	114	103	101	95	1,142
Norway	78	82	89	99	105	115	137	162	177	185	172	158	154	1,713
Pakistan	73	78	76	76	84	86	94	104	109	103	97	100	93	1,173
Philippines	66	84	109	112	113	113	114	123	124	130	131	123	127	1,469
Poland	37	42	49	49	78	140	188	252	281	302	300	293	288	2,299
Portugal	47	52	53	52	52	48	49	50	47	46	43	45	44	628
Qatar						7	12	16	16	17	17	17	17	119
Russia	18	20	26	30	44	70	107	213	258	259	252	244	222	1,763
Saudi Arabia					4	46	55	69	83	85	89	88	89	608
Singapore	148	207	323	359	438	474	482	488	518	535	524	514	514	5,524
Slovakia	5	5	5	5	7	6	9	12	12	11	10	10	9	106
Slovenia			1	2	9	10	10	11	24	25	24	24	24	164
South Africa	226	234	237	233	216	220	232	230	251	267	257	249	233	3,085

Continued on next page.

Table 1: Number of board observations across countries and years (continued).

Country	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
Spain	80	82	89	90	95	95	102	101	104	101	101	100	97	1,237
Sweden	148	192	201	210	218	236	280	325	351	369	344	337	329	3,540
Switzerland	129	142	147	149	152	160	168	177	178	173	169	167	160	2,071
Taiwan	24	64	75	84	86	89	96	104	111	115	115	114	117	1,194
Thailand	175	188	227	249	291	343	381	390	397	399	394	397	394	4,225
Turkey	83	107	124	127	152	168	178	182	179	184	184	185	181	2,034
United Arab Emirates					1	9	23	28	37	37	38	39	39	251
United Kingdom	725	807	920	952	952	1,064	1,177	1,267	1,310	1,327	1,187	1,137	1,073	13,898
USA	3,346	3,432	3,337	3,195	3,168	3,306	3,400	3,477	3,544	3,564	3,244	3,156	3,022	43,191
Venezuela	14	18	21	18	19	19	19	19	20	19	17	15	9	227
Total	11,529	13,754	15,254	15,607	16,652	18,181	19,379	21,401	22,259	22,653	21,779	21,649	21,006	241,103

This table shows the number of observations for the fraction of women on a firm's board (WOMEN) across the 53 countries in the sample. The sample period is from 1998 to 2010.

Table 2: Average fraction of female board members.

Country	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
Argentina	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.08	0.07	0.07	0.07	0.06	0.06	0.07
Australia	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.07	0.07	0.07	0.06
Austria	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.04	0.05	0.05	0.04
Belgium	0.08	0.08	0.08	0.08	0.09	0.09	0.11	0.11	0.10	0.10	0.09	0.09	0.09	0.09
Brazil	0.06	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.06	0.07	0.07
Canada	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.08	0.07	0.07	0.07	0.07	0.07
Chile	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.05	0.05	0.05	0.05
China	0.11	0.11	0.11	0.11	0.11	0.11	0.12	0.11	0.11	0.12	0.12	0.12	0.12	0.12
Czech Republic	0.13	0.12	0.10	0.10	0.10	0.08	0.12	0.10	0.10	0.12	0.13	0.15	0.18	0.12
Denmark	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Egypt	0.03	0.04	0.05	0.04	0.03	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.05
Estonia					0.13	0.13	0.16	0.16	0.14	0.17	0.15	0.19	0.16	0.16
Finland	0.14	0.14	0.14	0.13	0.13	0.13	0.14	0.15	0.14	0.14	0.15	0.16	0.16	0.14
France	0.15	0.15	0.15	0.15	0.15	0.15	0.14	0.14	0.14	0.14	0.13	0.13	0.14	0.14
Germany	0.05	0.05	0.06	0.05	0.05	0.05	0.06	0.06	0.05	0.05	0.06	0.06	0.05	0.05
Greece	0.13	0.14	0.15	0.15	0.15	0.15	0.14	0.14	0.14	0.15	0.16	0.16	0.16	0.15
Hong Kong	0.13	0.13	0.14	0.15	0.14	0.15	0.14	0.14	0.14	0.14	0.14	0.15	0.14	0.14
Hungary	0.16	0.17	0.21	0.17	0.19	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.18	0.17
Iceland					0.08	0.07	0.09	0.08	0.06	0.07	0.11	0.10	0.13	0.08
India	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.07	0.07	0.07	0.07
Indonesia	0.11	0.11	0.12	0.13	0.13	0.13	0.12	0.10	0.12	0.13	0.12	0.13	0.12	0.12
Ireland	0.04	0.04	0.04	0.04	0.06	0.05	0.06	0.05	0.05	0.05	0.06	0.06	0.06	0.05
Israel	0.08	0.11	0.12	0.12	0.12	0.12	0.14	0.14	0.14	0.16	0.16	0.16	0.16	0.14
Italy	0.08	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.09	0.09	0.09	0.10	0.08
Japan	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.03
Luxembourg	0.03	0.03	0.03	0.03	0.04	0.04	0.06	0.05	0.06	0.06	0.07	0.08	0.08	0.05
Malaysia	0.10	0.10	0.11	0.10	0.11	0.11	0.11	0.10	0.11	0.11	0.11	0.11	0.11	0.11
Mexico	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Morocco	0.07	0.09	0.08	0.06	0.06	0.05	0.06	0.06	0.08	0.08	0.07	0.07	0.06	0.07
Netherlands	0.09	0.09	0.08	0.09	0.08	0.07	0.08	0.07	0.07	0.07	0.08	0.08	0.09	0.08
New Zealand	0.07	0.06	0.07	0.07	0.07	0.08	0.07	0.08	0.09	0.09	0.09	0.09	0.09	0.08
Norway	0.11	0.12	0.13	0.14	0.14	0.15	0.16	0.17	0.20	0.23	0.24	0.24	0.25	0.19
Pakistan	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04
Philippines	0.18	0.17	0.19	0.19	0.19	0.19	0.20	0.21	0.21	0.19	0.21	0.21	0.21	0.20
Poland	0.09	0.11	0.11	0.12	0.11	0.13	0.15	0.17	0.16	0.17	0.16	0.16	0.16	0.15
Portugal	0.15	0.15	0.15	0.15	0.13	0.11	0.13	0.12	0.12	0.09	0.09	0.09	0.09	0.12
Qatar						0.00	0.00	0.01	0.01	0.00	0.02	0.01	0.01	0.01
Russia	0.10	0.10	0.11	0.10	0.10	0.12	0.11	0.14	0.15	0.14	0.13	0.14	0.14	0.13
Saudi Arabia					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Singapore	0.14	0.15	0.16	0.16	0.16	0.15	0.15	0.15	0.15	0.14	0.14	0.14	0.14	0.15
Slovakia	0.10	0.10	0.10	0.12	0.12	0.09	0.18	0.16	0.18	0.21	0.22	0.23	0.23	0.17
Slovenia			0.41	0.32	0.23	0.22	0.20	0.20	0.24	0.25	0.24	0.21	0.25	0.23
South Africa	0.09	0.09	0.09	0.10	0.09	0.09	0.10	0.10	0.11	0.11	0.12	0.14	0.15	0.11

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Table 2: Average fraction of female board members (continued).

Country	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
Spain	0.06	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.09	0.10	0.11	0.08
Sweden	0.11	0.11	0.11	0.11	0.11	0.12	0.14	0.14	0.14	0.14	0.15	0.15	0.16	0.13
Switzerland	0.05	0.05	0.04	0.04	0.04	0.04	0.05	0.05	0.06	0.05	0.06	0.06	0.06	0.05
Taiwan	0.07	0.04	0.05	0.06	0.06	0.06	0.06	0.07	0.06	0.07	0.08	0.09	0.09	0.07
Thailand	0.15	0.16	0.17	0.18	0.19	0.19	0.19	0.19	0.19	0.20	0.19	0.20	0.20	0.19
Turkey	0.10	0.10	0.11	0.10	0.10	0.11	0.11	0.10	0.11	0.11	0.11	0.11	0.11	0.11
United Arab Emirates					0.00	0.00	0.01	0.01	0.02	0.02	0.02	0.03	0.03	0.02
United Kingdom	0.06	0.06	0.06	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
USA	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.09	0.09	0.09	0.10	0.10	0.08
Venezuela	0.10	0.08	0.09	0.09	0.08	0.09	0.09	0.09	0.09	0.10	0.11	0.11	0.12	0.09
Total	0.08	0.08	0.08	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09

This table shows the average fraction of women on a firm's board (WOMEN) across the 53 countries in the sample. The sample period is from 1998 to 2010.

Table 3: Sample descriptive statistics.

Variable	*N*	**Mean**	1^{st} **Quartile**	**Median**	3^{rd} **Quartile**	**SD**
			Firm-level board variables			
Women	239,958	0.0856	0.0000	0.0455	0.1429	0.1156
Women [Dummy]	239,958	0.5109	0.0000	1.0000	1.0000	0.4999
Women [Director]	236,512	0.0680	0.0000	0.0000	0.1250	0.1217
Board Size	240,714	11.9122	7.0000	10.0000	15.0000	7.0348
Board Size [Director]	236,512	6.4901	4.0000	6.0000	8.0000	3.3619
Age Diversity	185,694	8.5965	6.1230	8.4932	10.8326	3.7516
			Other firm-level variables			
Tobin's Q	260,867	1.6716	0.9135	1.1882	1.7938	1.5443
Size	285,071	1,153	35	130	512	3,775
Leverage	284,445	0.2084	0.0280	0.1774	0.3385	0.1877
Profitability	277,090	0.0297	0.0022	0.0551	0.1073	0.1659
Retained Earnings	258,944	-0.1723	-0.0807	0.0812	0.2475	1.1203
Tangibility	283,836	0.3134	0.1078	0.2690	0.4725	0.2411
Growth	254,747	0.1222	-0.0408	0.0962	0.2448	0.3862
			Country-level measures for culture			
Hofstede_MAS	281,124	62.3328	52.0000	62.0000	66.0000	18.7060
Schwartz_Mastery	212,593	4.2565	4.0900	4.2700	4.3400	0.2175
Globe_ASS	276,117	4.4569	3.7600	4.3600	4.8000	0.8641
WVS_Income_Gap	193,800	-0.0064	-0.0715	-0.0215	0.0785	0.1452
			Country-level measures for development			
Political Stability	265,446	0.3997	-0.0347	0.6998	1.0092	0.7888
Press Freedom	248,472	-30.2287	-35.0000	-20.0000	-17.0000	21.5709
Anti-Corruption	287,029	6.6696	4.9000	7.3000	8.3000	2.0804
			Other country-level variables			
GDP per Capita	286,718	23,156	5,288	25,620	36,539	14,261
GDP Growth	286,718	3.3221	1.6851	3.0217	4.8689	3.6021
Inflation	284,676	2.6686	0.7853	2.1662	3.3893	4.1873

This table provides summary statistics over the 1998-2010 period. A detailed description of all variables can be found in Appendix A. All other firm-level variables are winsorized annually at the 1%-level.

Table 4: Country-level variables.

Country	Hofstede_MAS	Political Stability
Argentina	56	-0.18
Australia	61	0.97
Austria	79	1.11
Belgium	54	0.89
Brazil	49	-0.12
Canada	52	1.03
Chile	28	0.58
China	66	-0.53
Czech Republic	57	0.79
Denmark	16	1.19
Egypt		-0.67
Estonia	30	0.65
Finland	26	1.53
France	43	0.59
Germany	66	0.99
Greece	57	0.48
Hong Kong	57	0.97
Hungary	88	0.86
Iceland		1.40
India	56	-1.18
Indonesia	46	-1.44
Ireland	68	1.28
Israel	47	-1.42
Italy	70	0.61
Japan	95	1.01
Luxembourg	50	1.45
Malaysia	50	0.19
Mexico	69	-0.41
Morocco	53	-0.45
Netherlands	14	1.16
New Zealand	58	1.22
Norway	8	1.38
Pakistan	50	-1.88
Philippines	64	-1.38
Poland	64	0.62
Portugal	31	1.08
Qatar		1.04
Russia	36	-0.97
Saudi Arabia		-0.41
Singapore	48	1.09
Slovakia	110	0.85
Slovenia	19	1.03
South Africa		-0.20
Spain	42	0.19
Sweden	5	1.27
Switzerland	70	1.30

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Table 4: Country-level variables (continued).

Country	**Hofstede_MAS**	**Political Stability**
Taiwan	45	
Thailand	34	-0.58
Turkey	45	-0.88
United Arab Emirates		0.84
United Kingdom	66	0.51
USA	62	0.40
Venezuela	73	-1.11
Total	62	0.40

This table shows a country's masculinity (Hofstede_MAS) and political stability. A detailed description of both variables can be found in Appendix A.

Table 5: Mean comparison.

Panel A: Firm characteristics			
Variable	Male board	Female board	*t*-statistic
Tobin's Q	1.63	1.75	-16.85***
Size	657.39	1,444.41	-54.69***
Board Size	9.39	14.38	-192.65***
Leverage	0.20	0.21	-13.56***
Panel B: Person characteristics			
Variable	Men	Women	*t*-statistic
Master	0.23	0.25	-6.49***
MBA	0.23	0.21	5.70***
Ph.D.	0.16	0.14	5.98***
Education	2.17	2.09	7.79***
Age	54.13	49.53	82.06***
Busyness	1.41	1.28	55.77***
Double Name	0.11	0.14	-49.55***

Panel A reports mean firm characteristics for firms with no female board members and firms with at least one female board member. Panel B reports the average education level as well as the age of female and male board members. ***, **, and * indicate significance at the 1%-, 5%-, and 10%-levels, respectively. A detailed description of all variables can be found in Appendix A.

Table 6: Firm valuation & country-level factors.

Model	Ia	Ib	IIa	IIb	IIIa	IIIb
Size	-0.051***	-0.52***	-0.052***	-0.54***	-0.052***	-0.53***
	(-2.97)	(-10.9)	(-2.94)	(-11.3)	(-3.03)	(-10.7)
Board Size	0.0091***	-0.0029	0.0093***	-0.0031	0.0092***	-0.0024
	(6.11)	(-0.95)	(6.08)	(-1.02)	(5.95)	(-0.86)
Leverage	-0.63***	-0.054	-0.63***	-0.059	-0.63***	-0.053
	(-2.73)	(-0.43)	(-2.66)	(-0.47)	(-2.75)	(-0.44)
Profitability	1.25***	0.70***	1.23***	0.69***	1.25***	0.69***
	(4.96)	(5.27)	(4.89)	(5.18)	(4.95)	(5.22)
Retained Earnings	-0.23***	-0.0073	-0.23***	-0.0072	-0.23***	-0.0045
	(-6.92)	(-0.35)	(-6.78)	(-0.33)	(-6.86)	(-0.21)
Tangibility	-0.29***	-0.10**	-0.30***	-0.10**	-0.29***	-0.10***
	(-5.83)	(-2.48)	(-6.01)	(-2.37)	(-5.78)	(-2.68)
Growth	0.26***	0.17***	0.26***	0.17***	0.26***	0.17***
	(4.02)	(6.00)	(4.02)	(5.99)	(4.04)	(6.03)
GDP per Capita	1.01***	1.43***	1.00***	1.43***	1.03***	1.45***
	(7.90)	(10.9)	(7.18)	(10.7)	(9.07)	(11.7)
Women	**0.22***	**0.15*****	**0.22****	**0.12****	**0.21***	**0.11***
	(1.95)	**(2.72)**	**(1.98)**	**(2.08)**	**(1.89)**	**(1.78)**
Women * Hofstede_MAS			**0.0024**	**0.0014**		
			(1.07)	**(0.52)**		
Women * Political Stability					**0.20*****	**0.33*****
					(3.46)	**(3.72)**
Observations	172,624	171,281	169,019	167,708	172,624	171,281
R^2	0.19	0.60	0.19	0.60	0.19	0.60
Year fixed Effects	yes	yes	yes	yes	yes	yes
Industry fixed Effects	yes	no	yes	no	yes	no
Country fixed Effects	yes	no	yes	no	yes	no
Firm fixed Effects	no	yes	no	yes	no	yes

The dependent variable is TOBIN'S Q. Estimation models are pooled OLS regressions or firm fixed effects regressions. All independent variables are lagged by one period. Time-variant components of the interaction terms are included, but not reported. Variables used in interaction terms are centered. *T*-statistics based on Huber/White robust standard errors clustered by firm and country are presented in parentheses. ***, **, and * indicate significance at the 1%-, 5%-, and 10%-levels, respectively. A detailed description of all variables can be found in Appendix A.

Table 7: Firm valuation & country-level factors: robustness I.

Model	Ia	Ib	IIa	IIb	IIIa	IIIb
Size	-0.049***	-0.42***	-0.051***	-0.52***	-0.052***	-0.52***
	(-3.30)	(-11.4)	(-3.00)	(-10.9)	(-3.05)	(-10.9)
Board Size	0.0086***	-0.0046	0.0091***	-0.0029	0.0091***	-0.0029
	(5.53)	(-1.56)	(6.13)	(-0.95)	(6.18)	(-0.95)
Leverage	-0.57***	-0.080	-0.63***	-0.054	-0.63***	-0.054
	(-2.70)	(-0.69)	(-2.74)	(-0.43)	(-2.74)	(-0.43)
Profitability	1.27***	0.66***	1.25***	0.70***	1.25***	0.70***
	(5.58)	(5.41)	(4.96)	(5.27)	(4.96)	(5.27)
Retained Earnings	-0.23***	-0.077***	-0.23***	-0.0073	-0.23***	-0.0073
	(-7.23)	(-4.39)	(-6.92)	(-0.35)	(-6.91)	(-0.35)
Tangibility	-0.28***	-0.16***	-0.29***	-0.10**	-0.29***	-0.10**
	(-5.53)	(-3.48)	(-5.83)	(-2.51)	(-5.81)	(-2.50)
Growth	0.22***	0.14***	0.26***	0.17***	0.26***	0.17***
	(3.84)	(5.78)	(4.03)	(5.99)	(4.03)	(5.99)
GDP per Capita	1.05***	1.40***	1.02***	1.44***		
	(16.7)	(11.8)	(7.99)	(10.9)		
Women	0.23**	0.11*	0.21**	0.14***	0.21**	0.14***
	(2.48)	(1.93)	(2.13)	(2.85)	(2.52)	(2.83)
Women * Press Freedom	**0.0087*** **	**0.0043** **				
	(2.73)	**(2.43)**				
Women * Anti-Corruption			**0.092*** **	**0.065** **		
			(3.43)	**(2.16)**		
Women * GDP per Capita					**0.19*** **	**0.053**
					(3.37)	**(1.15)**
Observations	162,376	160,945	172,624	171,281	172,624	171,281
Year fixed Effects	yes	yes	yes	yes	yes	yes
Industry fixed Effects	yes	no	yes	no	yes	no
Country fixed Effects	yes	no	yes	no	yes	no
Firm fixed Effects	no	yes	no	yes	no	yes

The dependent variable is TOBIN'S Q. Estimation models are pooled OLS regressions or firm fixed effects regressions. All independent variables are lagged by one period. Time-variant components of the interaction terms are included, but not reported. Variables used in interaction terms are centered. T-statistics based on Huber/White robust standard errors clustered by firm and country are presented in parentheses. ***, **, and * indicate significance at the 1%-, 5%-, and 10%-levels, respectively. A detailed description of all variables can be found in Appendix A.

Table 8: Firm valuation & country-level factors: robustness II.

Model	Ia	Ib	IIa	IIb	IIIa	IIIb
Size	-0.053***	-0.53***	-0.052***	-0.53***	-0.034*	-0.035***
	(-3.13)	(-10.7)	(-3.11)	(-10.6)	(-1.93)	(-2.66)
Board Size	0.0081***	-0.0027	0.0095***	-0.0024	0.0071***	0.0065***
	(5.60)	(-0.97)	(5.96)	(-0.87)	(6.04)	(2.58)
Leverage	-0.63***	-0.053	-0.64***	-0.049	-0.75***	-0.92***
	(-2.75)	(-0.44)	(-2.79)	(-0.39)	(-3.37)	(-3.77)
Profitability	1.25***	0.69***	1.24***	0.69***	1.55***	1.06***
	(4.97)	(5.18)	(5.01)	(5.24)	(7.91)	(5.36)
Retained Earnings	-0.23***	-0.0048	-0.23***	-0.0039	-0.26***	-0.19***
	(-6.83)	(-0.23)	(-6.92)	(-0.19)	(-8.09)	(-5.66)
Tangibility	-0.29***	-0.10**	-0.29***	-0.11***	-0.25***	-0.31***
	(-5.75)	(-2.57)	(-5.78)	(-2.74)	(-6.95)	(-7.34)
Growth	0.26***	0.17***	0.26***	0.17***	0.24***	0.31***
	(4.06)	(6.05)	(4.05)	(5.99)	(4.10)	(3.77)
GDP per Capita	1.04***	1.46***	1.04***	1.46***	1.05***	1.00***
	(8.87)	(11.5)	(9.07)	(11.8)	(9.21)	(6.39)
Women [Dummy]	**0.057*** **	**0.0078**				
	(2.86)	**(0.55)**				
Women [Dummy] * PS	**0.057** **	**0.082*** **				
	(2.26)	**(2.76)**				
Women [Director]			**0.18** **	**0.099**		
			(1.99)	**(1.11)**		
Women [Director] * PS			**0.17*** **	**0.27*** **		
			(3.12)	**(2.60)**		
Gender					**0.027** **	**0.030*** **
					(2.29)	**(3.21)**
Gender * PS					**0.030*** **	**0.046*** **
					(3.90)	**(3.99)**
Education						0.034***
						(4.02)
Age						-0.0021***
						(-4.32)
Busyness						0.0068
						(1.12)
Observations	172,624	170,929	170,904	169,556	2,006,854	308,587
R^2	0.19	0.60	0.19	0.60	0.21	0.21
Year fixed Effects	yes	yes	yes	yes	yes	yes
Industry fixed Effects	yes	no	yes	no	yes	yes
Country fixed Effects	yes	no	yes	no	yes	yes
Firm fixed Effects	no	yes	no	yes	no	no

The dependent variable is TOBIN'S Q in all models. In Model III, we perform person-level regressions for single persons. Estimation models are pooled OLS regressions or firm fixed effects regressions. All independent variables are lagged by one period. Time-variant components of the interaction terms are included, but not reported. Variables used in interaction terms are centered. T-statistics based on Huber/White robust standard errors clustered by firm, country, and person (only model III) are presented in parentheses. ***, **, and * indicate significance at the 1%-, 5%-, and 10%-levels, respectively. A detailed description of all variables can be found in Appendix A.

Table 9: Determinants.

Model	Ia	Ib	IIa	IIb
Size	-0.0031*	0.00015	-0.0041*	-0.0069***
	(-1.69)	(0.080)	(-1.86)	(-2.64)
Board Size	0.0012***	0.00010	0.0015***	0.0022***
	(5.34)	(0.65)	(4.67)	(7.57)
Leverage	-0.0050	0.0027	-0.0047	-0.000082
	(-1.02)	(0.73)	(-0.77)	(-0.013)
Profitability	0.019***	0.0054	0.021***	0.024***
	(3.93)	(1.47)	(3.65)	(3.25)
Retained Earnings	0.0016**	0.00047	0.0020*	0.0010
	(2.41)	(0.63)	(1.79)	(0.52)
Tangibility	-0.00034	-0.0053*	-0.0056	-0.012
	(-0.084)	(-1.93)	(-1.11)	(-1.55)
Growth	-0.0053***	-0.0010	-0.0070***	-0.0055***
	(-10.00)	(-1.35)	(-7.13)	(-3.65)
GDP per Capita	0.023	0.0089	-0.0053	-0.0047
	(1.00)	(0.50)	(-1.30)	(-1.14)
GDP Growth	-0.0012**	-0.0013***	0.0021**	0.0031*
	(-2.02)	(-2.60)	(2.19)	(1.89)
Inflation	-0.00027	-0.00024*	-0.00058**	0.00038
	(-1.59)	(-1.94)	(-2.05)	(0.50)
Hofstede_MAS			**-0.0013*** **	
			(-6.40)	
Political Stability				**-0.0050**
				(-0.59)
Observations	184,709	183,345	180,863	184,709
R^2	0.16	0.79	0.12	0.07
Year fixed Effects	yes	yes	yes	yes
Industry fixed Effects	yes	no	yes	yes
Country fixed Effects	yes	no	no	no
Firm fixed Effects	no	yes	no	no

The dependent variable is WOMEN. Estimation models are pooled OLS regression or firm fixed effects regressions. All independent variables are lagged by one period. T-statistics based on Huber/White robust standard errors clustered by firm and country are presented in parentheses. ***, **, and * indicate significance on the 1%-, 5%-, and 10%-levels, respectively. A detailed description of all variables can be found in Appendix A.

Table 10: Mechanisms.

Dep. Variable	TOBIN'S Q				PROFITABILITY	
Model	Ia	Ib	IIa	IIb	IIIa	IIIb
Size	-0.55***	-0.55***	-0.034*	-0.037**	0.011***	-0.016***
	(-10.9)	(-10.9)	(-1.93)	(-2.00)	(8.52)	(-5.78)
Board Size	-0.0032	-0.0033	0.0071***	0.0064***	-0.00025	-0.00030
	(-1.15)	(-1.19)	(6.13)	(3.88)	(-1.42)	(-1.36)
Leverage	-0.14	-0.14	-0.75***	-0.82***	-0.020*	0.011
	(-1.15)	(-1.16)	(-3.35)	(-4.85)	(-1.81)	(0.82)
Tobin's Q					0.014***	0.012***
					(11.0)	(13.3)
Profitability	0.71***	0.71***	1.56***	1.76***		
	(4.77)	(4.77)	(7.94)	(10.8)		
Retained Earnings	-0.0068	-0.0067	-0.26***	-0.29***	0.055***	-0.0048
	(-0.23)	(-0.23)	(-8.13)	(-10.2)	(13.5)	(-1.64)
Tangibility	-0.10**	-0.10**	-0.25***	-0.28***	0.015***	-0.026***
	(-2.33)	(-2.39)	(-6.96)	(-5.89)	(2.94)	(-3.43)
Growth	0.17***	0.17***	0.24***	0.25***	0.0098*	0.023***
	(5.16)	(5.17)	(4.07)	(3.90)	(1.79)	(9.43)
GDP per Capita	1.53***	1.54***	1.03***	1.10***	-0.011	0.0052
	(12.0)	(12.1)	(7.97)	(7.30)	(-0.74)	(0.56)
Women		**0.21*** **			**0.012*** **	**-0.0010**
		(2.73)			**(3.04)**	**(-0.098)**
Women * PS		**0.44*** **			**0.020*** **	**0.040*** **
		(3.62)			**(2.99)**	**(2.97)**
Gender			**0.035*** **			
			(2.87)			
Double Name			**-0.061*** **	**-0.085*** **		
			(-10.3)	**(-5.60)**		
Gender * Double Name			**-0.037** **			
			(-2.21)			
Age Diversity	**-0.0040**	**-0.0040**				
	(-1.60)	**(-1.62)**				
Age Diversity * PS	**0.00016**	**0.00013**				
	(0.024)	**(0.020)**				
Observations	137,465	137,464	2,006,854	184,525	168,131	166,513
R^2	0.61	0.61	0.21	0.21	0.22	0.60
Year fixed Effects	yes	yes	yes	yes	yes	yes
Industry fixed Effects	no	no	yes	yes	yes	no
Country fixed Effects	no	no	yes	yes	yes	no
Firm fixed Effects	yes	yes	no	no	no	yes

The dependent variable is TOBIN'S Q in Models I and II and PROFITABILITY in Model III. In Model II, we perform person-level regressions for single persons. In Model IIb all male board members are excluded. Estimation models are pooled OLS regressions in Models II and IIIa as well as firm fixed effects regressions in Models I and IIIb. All independent variables are lagged by one period. Time-variant components of the interaction terms are included, but not reported. Variables used in interaction terms are centered. *T*-statistics based on Huber/White robust standard errors clustered by firm and country are presented in parentheses. ***, **, and * indicate significance at the 1%-, 5%-, and 10%-levels, respectively. A detailed description of all variables can be found in Appendix A.

Table 11: Effect of female board representation on performance across countries.

Country	Value effect	Country	Value effect
Belgium	1.75	Greece	0.02
Norway	1.61	Mexico	0.02
Spain	1.59	South Africa	-0.02
Switzerland	1.43	Thailand	-0.05
New Zealand	1.01	Germany	-0.09
Canada	0.98	Netherlands	-0.10
Austria	0.77	Hungary	-0.10
Finland	0.72	China	-0.14
USA	0.69	India	-0.15
Sweden	0.67	France	-0.18
Israel	0.57	Pakistan	-0.20
Taiwan	0.47	Malaysia	-0.30
Ireland	0.45	Australia	-0.32
Poland	0.39	Russia	-0.39
Japan	0.27	Portugal	-0.40
Philippines	0.21	Italy	-0.42
Hong Kong	0.19	Egypt	-0.52
Denmark	0.18	Argentina	-0.67
Indonesia	0.12	Brazil	-0.87
United Kingdom	0.08	Turkey	-1.09
Singapore	0.07	Chile	-3.19

This table shows the coefficients for WOMEN, obtained from regressions of Model Ia, Table 6, for each country. Only countries in which female board members are present in more than 200 firm-years are considered.

Appendix

Appendix A: Definition of variables.

Variable	Description
Firm-level board variables	
Women	Fraction of women on a firm's board at the fiscal year end date (source: Thomson Reuters).
Women [Dummy]	Dummy variable which equals one if at least on female board member is present at the fiscal year end date and zero otherwise (source: Thomson Reuters).
Women [Director]	Fraction of women on a firm's board at the fiscal year end date; only directors are considered. (source: Thomson Reuters).
Board Size	Board Size is the number of both executive and non-executive directors as well as senior managers at a firm's fiscal year end date (source: Thomson Reuters).
Board Size [Director]	Board Size is the number of both executive and non-executive directors at a firm's fiscal year end date (source: Thomson Reuters).
Age Diversity	Age Diversity is the standard deviation for all board members's age at a firm's fiscal year end date (source: Thomson Reuters).
Other firm-level variables	
Tobin's Q	Tobin's Q is total assets (WC02999) minus common stock (WC03501) plus the market value of equity (WC08001) deflated by total assets (source: Worldscope).
Size	Size is total assets in millions of $US. When performing regressions, we employ the natural logarithm of the variable (source: Worldscope).
Leverage	Leverage is book leverage defined as total debt (WC03255) deflated by total assets (source: Worldscope).
Profitability	Profitability is earnings before interest and taxes (WC18191) to total assets (source: Worldscope).
Retained Earnings	Retained earnings is retained earnings (WC03495) deflated by total assets (source: Worldscope).
Tangibility	Tangibility is defined as net property, plant, and equipment (WC02501) deflated by total assets (source: Worldscope).
Growth	Growth is the one-year logarithmic sales growth (WC01001) (source: Worldscope).
Person-level variables	
Gender	Dummy variable which equals one for female board members and zero for men.
Master	Dummy variable which equals one if a board member holds a master's degree and zero otherwise (source: Thomson Reuters).
MBA	Dummy variable which equals one if a board member holds a MBA and zero otherwise (source: Thomson Reuters).
Ph.D.	Dummy variable which equals one if a board member holds a Ph.D. and zero otherwise (source: Thomson Reuters).
Education	Board member-specific index which equals one for a bachelor's degree, two for a master's degree, three for a MBA, and four for a Ph.D. (source: Thomson Reuters).
Age	Age refers to the age of a board member in a given year (source: Thomson Reuters).
Busyness	Busyness is the number of positions a board member holds at firm's fiscal year end date (source: Thomson Reuters).
Double Name	Dummy variable which equals one if another board member shares the same surname.

Continued on next page.

Definition of variables (continued).

Variable	Description
Country-level measures for culture	
Hofstede_MAS	A country's level of masculinity. According to Geert Hofstede's website (www.geert-hofstede.com/dimensions.html), "[t]he masculinity side of this dimension represents a preference in society for achievement, heroism, assertiveness and material reward for success. Society at large is more competitive. Its opposite, femininity, stands for a preference for cooperation, modesty, caring for the weak and quality of life. Society at large is more consensus-oriented" (sources: Hofstede, 1980, 2001).
Schwartz_Mastery	A country's level of mastery. Like Hofstede's masculinity dimension, this measure also emphasizes assertiveness and ambition (source: Schwartz, 1994, 2009).
Globe_ASS	A country's level of assertiveness. House et al. (2004), p. 30, define assertiveness as "the degree to which individuals are assertive, confrontational, and aggressive in their relationships with others" (source: House et al., 2004).
WVS_Income_Gap	Refers to one question of the World Values Survey. People were asked if they agree strongly, agree, disagree, or disagree strongly with the following statement: "If a woman earns more money than her husband, it's almost certain to cause problems." We code agree strongly with -1, agree with -2, disagree with -3, and disagree strongly with -4 (source: World Values Survey 1981-2008 Official Aggregate v.20090901, 2009).
Country-level measures for development	
Political Stability (PS)	Political Stability is a country-level measure of political stability developed by Kaufmann et al. (2009).
Press Freedom	The Freedom of the Press index is developed by Freedom House. It is a composite index that draws on an annual survey in 197 countries around the world. We multiply the index by -1 so that higher values indicate higher press freedom.
Anti-Corruption	Anti-Corruption is the 2006 Corruption Perceptions Index, developed by Transparency International. It is a composite index that draws on multiple expert opinion surveys that poll perceptions of public sector corruption in 163 countries around the world. Higher values indicate less corruption.
Other country-level variables	
GDP per Capita	GDP per Capita is a country's GDP per capita in $US. When performing regressions, we employ the natural logarithm of the variable (source: Worldbank).
GDP Growth	GDP growth is the annual growth rate of a country's GDP in percent (source: Worldbank).
Inflation	Inflation is a country's inflation rate in percent (source: Worldbank).

Appendix B: Correlation coefficients.

	Women	Women [Dummy]	Age Diversity	Board Size	Tobin's Q	Size	Leverage	Profitability	Retained Earnings	Tangibility	Growth	Hofstede_MAS	Political Stability
Women	1.00												
Women [Dummy]	0.72	1.00											
Board Size	0.09	0.36	1.00										
Age Diversity	0.09	0.10	0.01	1.00									
Tobin's Q	0.03	0.04	-0.03	0.03	1.00								
Size	-0.04	0.14	0.51	-0.12	-0.16	1.00							
Leverage	0.00	0.03	0.09	0.02	-0.19	0.27	1.00						
Profitability	0.05	0.08	0.15	-0.01	-0.06	0.29	0.03	1.00					
Retained Earnings	0.01	0.04	0.16	-0.07	-0.21	0.38	0.09	0.53	1.00				
Tangibility	-0.02	0.01	0.09	0.01	-0.15	0.17	0.30	0.05	0.10	1.00			
Growth	0.00	0.01	-0.01	0.02	0.17	-0.02	-0.02	0.11	0.01	-0.02	1.00		
Hofstede_MAS	-0.23	-0.27	-0.14	-0.24	-0.08	0.14	0.01	0.00	0.10	-0.03	-0.05	1.00	
Political Stability	-0.11	-0.12	-0.09	-0.19	0.00	0.01	-0.10	-0.15	-0.01	-0.09	-0.03	0.21	1.00

This table provides correlation coefficients for the main variables. A detailed description of all variables can be found in Appendix A. All other firm-level variables are winsorized annually at the 1%-level.

Appendix C: Firm valuation & country-level factors: robustness III.

Model	Ia	Ib	IIa	IIb	IIIa	IIIb
Size	-0.054**	-0.57***	-0.051**	-0.56***	-0.051***	-0.54***
	(-2.41)	(-10.7)	(-2.22)	(-8.39)	(-2.82)	(-11.4)
Board Size	0.0085***	-0.0051	0.0089***	-0.0058	0.0089***	-0.0027
	(6.21)	(-1.56)	(5.09)	(-1.47)	(5.94)	(-0.89)
Leverage	-0.60**	-0.054	-0.66**	-0.060	-0.63***	-0.058
	(-2.11)	(-0.36)	(-1.98)	(-0.32)	(-2.62)	(-0.45)
Profitability	1.36***	0.76***	1.31***	0.77***	1.22***	0.69***
	(4.01)	(4.26)	(3.78)	(3.84)	(4.82)	(5.14)
Retained Earnings	-0.23***	-0.0060	-0.21***	0.0066	-0.23***	-0.0067
	(-6.02)	(-0.21)	(-5.77)	(0.29)	(-6.74)	(-0.31)
Tangibility	-0.32***	-0.11**	-0.28***	-0.12***	-0.32***	-0.11**
	(-6.00)	(-2.31)	(-4.07)	(-2.96)	(-6.71)	(-2.57)
Growth	0.28***	0.18***	0.33***	0.21***	0.26***	0.17***
	(3.41)	(5.11)	(3.82)	(5.38)	(4.00)	(5.93)
GDP per Capita	1.00***	1.46***	1.10***	1.58***	0.98***	1.42***
	(6.86)	(10.1)	(15.4)	(11.2)	(6.43)	(10.4)
Women	0.22	0.15**	0.26*	0.21***	0.22*	0.14**
	(1.53)	(2.44)	(1.76)	(4.58)	(1.84)	(2.21)
Women * Schwartz_Mastery	**0.087**	**-0.56**				
	(0.24)	**(-1.54)**				
Women * WVS_Income_Gap			**-1.00***	**0.27**		
			(-1.87)	**(0.42)**		
Women * Globe_ASS					**0.061**	**0.00064**
					(0.89)	**(0.0090)**
Observations	139,795	138,928	116,167	115,232	166,498	165,207
Year fixed Effects	yes	yes	yes	yes	yes	yes
Industry fixed Effects	yes	no	yes	no	yes	no
Country fixed Effects	yes	no	yes	no	yes	no
Firm fixed Effects	no	yes	no	yes	no	yes

The dependent variable is TOBIN'S Q. Estimation models are pooled OLS regressions or firm fixed effects regressions. All independent variables are lagged by one period. Time-variant components of the interaction terms are included, but not reported. Variables used in interaction terms are centered. T-statistics based on Huber/White robust standard errors clustered by firm and country are presented in parentheses. ***, **, and * indicate significance on the 1%-, 5%-, and 10%-levels, respectively. A detailed description of all variables can be found in Appendix A.

Appendix D: Determinants: robustness I.

Dep. Variable	WOMEN				WOMEN [DIRECTOR]
Model	Ia	Ib	Ic	II	III
Control variables			*Not Reported*		
Schwartz_Mastery	**-0.074** **(-2.22)**				
WVS_Income_Gap		**-0.16*** **(-5.08)**			
Globe_ASS			**-0.017** **(-2.53)**		
Hofstede_MAS				**-0.0015*** **(-7.04)**	**-0.0011*** **(-6.88)**
Political Stability				-0.0018 (-0.25)	
Press Freedom				-0.00039 (-1.17)	
Anti-Corruption				-0.0070* (-1.69)	
Observations	149,789	123,807	179,397	170,179	178,794
R^2	0.10	0.13	0.09	0.12	0.07
Year fixed Effects	yes	yes	yes	yes	yes
Industry fixed Effects	yes	yes	yes	yes	yes
Country fixed Effects	no	no	no	no	no
Firm fixed Effects	no	no	no	no	no

The dependent variable is WOMEN in models I and II and WOMEN [DIRECTOR] in model III. Estimation models are pooled OLS regressions. All independent variables are lagged by one period. T-statistics based on Huber/White robust standard errors clustered by firm and country are presented in parentheses. ***, **, and * indicate significance on the 1%-, 5%-, and 10%-levels, respectively. A detailed description of all variables can be found in Appendix A.