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Drawing on the business case for gender diversity, this article examines whether board gender diversity has a positive effect on firm performance, based on evidence from the Netherlands and Denmark. We use empirical data on 186 listed firms observed in 2007. Almost 40% have at least one woman in the boardroom. Within boards, the average share of women is only 5.4%. To investigate the impact of board gender diversity, two-stage least-squares estimation is applied, using Tobin's Q as a measure of performance. Our findings indicate that on the basis of this data-set, there is no relation between board diversity and firm performance.

Keywords: board diversity; corporate governance; female board representation; firm performance

Introduction

Increasing gender diversity in the boardroom and in top executive positions has become an important focus of government considerations, particularly in Europe. Women in the EU represent only 14% of executive boards and supervisory boards of the largest listed companies. In addition, the share of women occupying the highest position of president or chairman within the EU Member States is as low as 3.4% (European Commission, 2012a). In order to increase the number of women in top positions, affirmative actions are under discussion or already operational in several countries. The most well-known example in this respect is Norway, where from 2006 onwards large firms must have at least 40% female representation among the members of the board of directors. As a result of this, Norway currently scores 42% female board representation (European Commission, 2012a). Binding quotas with sanctions are also implemented in Belgium and Italy, both having a quota of 33%, and France, where the quota is 40%. In other countries, quota legislation is implemented without sanctions; examples being Spain (40%) and the Netherlands (30%). According to the European Commission, however, progress is slow. It therefore proposed European legislation in order to speed up the process. By 2020, 40% of non-executive board-member positions in publicly listed companies (with the exception of small and medium enterprises), should be occupied by women.[1] Interestingly, the proposal is not only motivated by equity considerations, but explicitly refers to the business case, claiming that gender diversity is a driving force of performance (European Commission, 2012b). In other words, a higher number of women in corporate top positions or on boards of directors will result in increased firm productivity and profitability.

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One of the most well-known studies supporting the business case argument for women in top management is that of Catalyst (2004). This study ranked the Fortune 500 companies in terms of highest representation of women on their top management teams and compared the financial performance (in terms of return on equity and total return to shareholders) of companies in the top quartile to companies in the lowest quartile. The results showed that the companies in the top quartile achieved significantly better financial results than those in the lowest quartile. Since then, interest in the business case for recruiting, developing and advancing women has been growing (e.g. Smith, Smit, & Verner, 2006; Terjesen, Sealy, & Singh, 2009). At the same time, the academic literature is still rather thin, with only a few studies providing a more sophisticated analysis of the relationship between board diversity and financial performance of firms (Carter, D'Souza, Simkins, & Simpson, 2010). The main concern with the Catalyst study is the direction of causality: more female board directors may contribute to higher firm performance, but it might also be the case that better-performing firms tend to appoint more women on their boards. In addition, research on European countries tends to indicate less evidently positive results (Smith et al., 2006; Terjesen et al., 2009), which raises the question on the driving mechanisms behind this relationship. In order to contribute to the scientific literature and to the European policy debate, this article therefore addresses the question whether board gender diversity indeed has a significant positive effect on firm performance, using European data and applying a more sophisticated methodology. The sample consists of 186 listed firms observed in 2007, of which 102 Dutch and 84 Danish. Denmark and the Netherlands were chosen as these two countries are similar in terms of gender equality and corporate governance. In both countries, gender equality is an important value, both score high on gender equality indices (see e.g. Plantenga et al., 2009) and have high female participation rates (72.4% of age group 20–64 in Denmark and 71.4 in the Netherlands in 2013, source: online database Eurostat). The share of women on boards is also similar; in 2012, it was 21% in Denmark and 22% in the Netherlands (EU online data base Women and men in decision-making). In addition, Denmark and the Netherlands have similar corporate governance structures, using a two-tier system with a management board and a supervisory board. The management board is made up of executive directors, and is responsible for the daily management of the company and decision-making. The supervisory board consists of non-executive directors and mainly deals with supervising the policy of the management board, ratifying managerial decisions, providing advice, as well as adopting the company's annual accounts (Committee on Corporate Governance, 2005; Corporate Governance Committee, 2003). The main difference between the two countries is that in Denmark a number of employee representatives may sit on supervisory boards, while the employees' role in Dutch boards is indirect, through the works councils. In both countries, corporate governance codes are effective which include a diversity clause (self-regulation) and there is national legislation to stimulate companies to increase the share of women in boards; however, these do not include hard quota (European Commission [EC], 2013).

As such, the goal of the article is to provide new empirical evidence on the business case argument within a European context. In line with the previous studies, the focus will be on gender diversity on boards and financial performance of listed firms. In addition, we will apply a methodology that allows for correct analysis of the relationship between board gender diversity and firm performance. As a result, outcomes of the analysis will be more robust and therefore more reliable.

Theoretical background and recent empirical findings

A dominant theory within corporate governance research on board characteristics and firm performance is the agency theory (Carter, Simkons, & Simpson, 2003). According to agency theory, independent corporate boards are crucial in aligning the interest of management and shareholders, in providing information for monitoring and counselling, and in ensuring effective decision-making (Becht, Bolton, & Röell, 2002; Hermalin & Weisbach, 2003). The composition of boards, in terms of characteristics such as gender diversity, age dispersion and the share of directors chosen by the employees, is likely to be relevant as it influences board decision-making processes (Bøhren & Strøm, 2007). Whether board diversity influences firm performance in a positive or negative way, however, is a priori undetermined. As Carter et al. (2003) conclude, one might argue that diversity increases board independence because it is more likely that board members with a different gender, ethnicity or cultural background ask different questions compared to boards with a more traditional background. As a result, a more diverse board might be a more activist one. In addition, based on more general organisational and psychological literature, Carter et al. (2003) summarise several of the positive theoretical underpinnings for diversity. Diverse boards may understand particular market conditions better, may bring more creativity and quality to board decision-making and produce more effective problem-solving. Smith et al. (2006) add that a more diverse board may generate a better public image of the firm and, through this, improve firm performance. Another argument in favour of diversity is that the talent pool for board members increases when women are also considered as potential candidates, as such increasing the probability of finding the best persons. Furthermore, the number of female top managers may positively influence the career development of women in lower positions, thus boosting firm productivity directly as well as indirectly – i.e. by enlarging the internal pool of candidates for top positions (Smith et al., 2006).

However, management diversity may also involve greater costs. The coordination of diverse top management teams may be more difficult and costly, whereas conflicts might also more easily occur (Smith et al., 2006). It is not clear whether a possible increase in performance will outweigh these increased costs. A heterogeneous board may also slow down decision-making as the likelihood of reaching consensus may be smaller. The result will be a less-efficient decision-making body, which may turn out to critically impede a firm's competitive behaviour. Carter et al. (2003) argue that even though a more diverse board may be more a activist one, there is no guarantee that monitoring is more effective because diverse board members may be marginalised. Given these cost and benefit considerations, the business case for gender diversity seems less clear cut and depending on specific circumstances. This opens the floor for more empirically oriented research on the relationship between gender diversity and firm performance.

In a study of large US public companies in various industries, Erhardt, Werbel and Shrader (2003) find that diversity of the executive board of directors is positively related to both return on investment (ROI) and return on assets (ROA) in 1998. Examining the relationship between the percentage of women and minorities on boards of directors and firm value as measured by Tobin's Q in Fortune 1000 firms in 1997, a significantly positive effect is also found by Carter et al. (2003). In another study, however, based on firms included in the S&P 500 index for the period 1998–2002 and using ROA and Tobin's Q as measures for financial performance, Carter et al. (2010) did not find a significant relationship. Based on a panel study of top 1,500 US public

companies, covering the period 1992–2006, Dezsö and Ross (2012) conclude that having a female CEO had no positive effect on firm performance, using Tobin's Q as indicator, while female participation below the CEO level was positively associated with firm performance for companies pursuing an innovation intensive strategy. Adams and Ferreira (2009) however, using data of more than 1900 firms covering the period 1996–2003, find an average negative effect of gender diversity on firm performance (Tobin's Q). This seems related to the fact that gender-diverse boards are tougher monitors. These monitor qualities are positive in the case of firms with otherwise weak governance. Yet, in firms with strong governance, there may be a risk of over monitoring which could decrease firm performance.

European evidence also appears to be mixed. Rose (2007) uses a sample of Danish firms listed on the Copenhagen Stock Exchange during 1998–2001, and finds that female board representation had no impact on firm performance (Tobin's Q). Smith et al. (2006) in a panel data study of 2500 of the biggest Danish firms covering the period 1993–2001 find mixed results, depending on the measurement of financial performance. Randøy, Thomsen and Oxelheim (2006) investigated the effect of board diversity on corporate performance (as measured by stock market valuation and ROA), examining a sample of the largest listed companies from Denmark, Norway and Sweden, and found no significant gender diversity effect. Bøhren and Strøm (2007), however, studying a sample of Norwegian listed non-financial firms and covering the period 1989–2002, conclude that firm performance (Tobin's Q) is better in firms with a lower share of female directors. Analysing listed firms in Spain over the period 1995–2000, Campbell and Mínguez-Vera (2008), find that the presence of at least one women (as measured with a dummy variable) has no impact of on firm performance (Tobin's Q). However, they do find a positive impact of the share of women on boards. According to the authors, this would imply that the balance between women and men is more important than simply the presence of women. Ahern and Dittmar (2012)'s study on the impact of the quota legislation according to which boards of public listed firms in Norway should have 40% women by January 2008 is also interesting. According to their results, the financial performance of the firms (Tobin's Q) significantly declined in the following years. The new female directors appear to be younger and have less CEO experience. According to the authors, the results are in line 'with the hypothesis that boards are chosen to maximise shareholder value and that imposing a severe constraint on the choice of directors leads to economically large declines in value.' (Ahern & Dittmar, 2012, p. 188)

Summarising, it may be concluded that the business case for gender diversity is not particularly strong. Empirical research also seems to indicate that the impact of gender diversity on firm performance may vary in different settings. This raises the question of the Dutch and Danish case: does more gender diversity in the boardrooms of Danish- and Dutch-listed firms result in better financial firm performance?

Empirical study: methodology

Sample and data

For this research, data have been collected on listed firms in the Netherlands and Denmark. In line with previous studies, we focus on listed companies. In addition, data on listed firms are more available. Our sample comprises 186 listed companies in 2007, of which 102 Dutch companies listed on Euronext Amsterdam and 84 Danish companies listed on OMX Nordic Exchange Copenhagen. The data are from 2007 and therefore

reflect the situation before the economic crisis. While not reflecting the most recent situation, the big advantage is that the results are not impacted by the recent financial turmoil. Banks, insurance companies and football clubs have been excluded as a result of their specific method of accounting, which poses difficulties for the calculation of the performance measure (Tobin's Q). Companies were also excluded in the case of missing data for 2007. In addition, two Dutch companies were excluded as 'outliers'. In this article, the term 'board' is used to refer to the combined number of all directors, i.e. management (executive) directors plus supervisory (non-executive) directors and the term 'supervisory directors' to refer specifically to the supervisory board. All companies in our samples (except for one) apply the two-tier system of corporate governance.

The main data source regarding board characteristics was companies' annual reports, supplemented by the AMADEUS database. AMADEUS contains financial information on over 11 million companies in Europe, including information on boards of directors. Data on directors, however, refer only to directors currently in office, while we needed to obtain information for 2007. Due to this database limitation, each company's annual report was checked and data on each director were manually collected from the companies' websites. Other public internet sources were used as supplementary sources. With respect to accounting and financial information, the source was Reuters' Datastream international financial statistical database. We converted all Danish companies' accounting figures into Euros, using the exchange rate applied in Datastream market capitalisation data, and taking into consideration variations in companies' accounting periods. In principle, all data refer to the situation on 31 December 2007. However, a few companies report on different dates varying from June 2007 to May 2008. In these cases, we ensured that all data are consistent with respect to the date of collection. Finally, AMADEUS was used for information on the companies' year of incorporation and the SIC industry classification. The main advantage of these sources is that they provide uniform data. A disadvantage is that the type of data is limited to structural characteristics. More qualitative data, for example on decision-making processes and dynamics in board rooms, are missing.

Method

One of the serious complications in studying the relationship between board gender diversity and firm performance is that finding a correlation does not imply causality. The direction of causality can go both ways – meaning either that gender diversity leads to higher performance, or that high-performing companies tend to employ a more gender diverse workforce – and can thus imply joint endogeneity of the variables board gender diversity and firm performance (see also Adams & Ferreira, 2009). In that case, the OLS coefficients are biased and cannot be interpreted as causal relations. To control for the joint endogeneity, two-stage least-square (2SLS) estimation was applied. For the sake of comparison, we will also present the results of OLS.

Following Carter et al. (2003), we estimated the system of simultaneous Equations (1) and (2) given below.

$$\text{Board Gender Diversity} = \beta_0 + \sum \beta z + v \tag{1}$$

$$\text{Firm Performance} = \alpha_o + \alpha_1 \text{Board Gender Diversity} + \sum \alpha x + \mu z + \varepsilon \tag{2}$$

where x is a vector of control variables and z represents the instrumental variable.

For the interpretation of results, a significant positive coefficient estimate ($\alpha_1 > 0$) will confirm the business case for gender diversity. If the business case is not supported, firm performance may either be negatively affected by board gender diversity (in that case the estimated coefficient of α_1 is negative) or the presence of females on board of directors has no association with firm performance (in that case the estimated coefficient of α_1 is zero or insignificant).

Variables

Firm performance

As the previous section illustrates, in corporate governance research there are several ways of measuring firm performance with little agreement on the most optimal one. The two main types of performance indicators are market-based ones (e.g. Tobin's Q and portfolio returns), and financial statement ratios (ROE, ROA and ROI). The last ones largely depend on the asset-valuation method. Tobin's Q is the predominant measure used in corporate governance research and impact studies of (gender) diversity and, even though not flawless, is relatively easy to interpret. For this reason, we will also use Tobin's Q, which is the ratio of the market value of a firm to the replacement cost of its assets. An excess of the firm's market value over its replacement costs (meaning a value of Tobin's Q greater than 1) suggests that the firm has intangible assets associated with future growth opportunities (Sudarsanam, 2003). More specifically, following Brav, Jiang, Partnoy and Thomas (2008), we calculated Tobin's Q as the market value of equity plus book value of debt, all divided by book value of debt plus book value of equity.

Board gender diversity

Board gender diversity is measured in two ways: (1) Percentage of women on the board (management board plus supervisory board); and (2) Dummy variable indicating 1 if there is at least one woman on the board, or zero otherwise.[2]

Control variables

A first control variable is board size. As reviewed by Hermalin and Weisbach (2003), corporate governance research revealed the existence of a predominantly negative association between board size and firm performance, whereas an inverse association between board size and Tobin's Q was found by Yermack (1996), and Carter et al. (2003).

Secondly, the share of independent directors is included as a control variable. Whether independent directors bring value is an issue related to the agency problem between owners and managers, as first studied by Berle and Means (1932). Consequently, the performance-related effect of independent board directors has been broadly investigated in corporate governance research with mixed results (e.g. Baysinger & Butler, 1985; Van Ees, Postma, & Sterken, 2003). The Dutch Corporate Governance Code recommends that, with the exception of one, all supervisory directors have to be independent (Corporate Governance Committee, 2003). In the majority of companies, however, all supervisory directors are independent (Van Ees, Hooghiemstra, Van der Laan, & Veltrop, 2007). Therefore, for the Dutch companies, the share of independent directors on board was simply calculated as the number of supervisory directors divided

by the total number of board members. In Denmark, at least half of the supervisory directors elected by the General Meeting of shareholders should be independent (Committee on Corporate Governance, 2005). In addition, employees may elect supervisory board members when the total number of employees exceeds 35, with a minimum of two and a maximum of half the number of supervisory directors (Knudsen, 2006). For the Danish companies, we therefore used the actual share of independent directors.[3]

In addition, firm size, firm age and industry were included as standard control variables. Firm size is measured by the natural logarithm of the net sales of the firm. Firm age is measured as the number of years the company existed in 2007. Regarding industry, a dummy variable, was included which is equal to 1 when the company is in the services industry, or zero otherwise (financial (except for banks and insurance), real estate, business, amusement and recreational, legal and accounting, management, research, development and testing services; 81 companies). Finally, we included a country dummy variable equal to 1 in the case that a company is Dutch, or zero otherwise.

Instrumental variable

To apply 2SLS an instrumental variable is needed that is correlated with the share of female directors on board, but has no (direct) effect on firm performance. As argued by Adams and Fereira (2009, p. 305), it is not easy to find valid instruments within the context of governance regressions as most factors that are correlated with the share of women on board are usually other governance characteristics that are already included in the regressions to explain performance. We have used the share of women in

Table 1. Variables definitions.

Variable	Definition
Tobin's Q	(Market Value Equity + Book Value Total Debt)/ (Book Value Equity + Book Value Total Debt)
Board gender diversity (%)	The number of female directors on Board as a proportion of all directors on board
Board gender diversity (1/0)	Dummy variable = 1 if there is at least 1 woman on board; 0 otherwise
Board size	The total number of directors
Share of supervisory directors	The number of supervisory directors as proportion of all directors on board
Average age of supervisory directors	The average age of supervisory directors calculated as the sum of the ages of all supervisory directors divided by the number of all supervisory directors
Firm size	The natural logarithm of the net sales of the firm
Firm age	The number of years of firm's existence (as at 31.12.2007) since year of incorporation
Industry dummy SERVICE	Dummy variable = 1 indicating that a company is in the service group of industries; 0 otherwise
Country dummy DUTCH	Dummy variable = 1 indicating that a company is Dutch; 0 otherwise
Share of women in industry (instrumental variable)	Share of women in industry (1 digit level)
Share of women in industry squared (instrumental variable)	Square of the share of women in industry (1 digit level)

industries as an instrumental variable and hand this share squared. We hypothesise that there is a positive but concave (that is diminishing) relationship with gender diversity in boards. This is indeed confirmed in the first stage, though the coefficients are not strongly correlated. This indicates a weak instrument, which should be taken into account when interpreting the results.[4] All variables used are summarised in Table 1.

Results

The companies in our sample have a total of 1454 board positions, 93 of which are occupied by women (6.4%). The majority of female directors held non-executive (supervisory) positions (82); there were only 11 female executive directors. Women occupy 8% of all 1026 non-executive director seats and 2.6% of all 428 executive positions. The percentage of companies with at least one female director in our total sample is 36.6% (25.5% for the Netherlands and 50% for Denmark). Table 2 presents descriptive statistics of key variables from our sample. The average board consists of 7.8 directors, with a minimum of 3 and a maximum of 18 members. The average share of women on a board is 5.4% and the highest percentage of women on the board found is 40%. Of the total board, 55.1% are independent directors and these directors are, on average, 57.4 years old. The average value of Tobin's Q is 2.30, with a standard deviation of 1.70.

A comparison between the two countries indicates that Denmark appears to have larger boards of directors and on average more women on them. These results seem in line with Randøy et al. (2006) who argue that the regulation regarding employee representation in Denmark adds to both board size and board diversity. In addition, it may be the case that larger boards offer more opportunities for gender diversity. In the Netherlands, the share of independent directors is higher, reflecting the difference in corporate governance recommendations. Moreover, supervisory directors in the Netherlands are, on average, 5 years older than those in Denmark. Board size does not appear to be associated with company size, as the average Dutch company in our sample is larger than its Danish counterpart (see Appendix 1 for more details).

Table 3 presents a general comparison of the mean values of the key variables for companies with at least one female director on the board and companies with no female directors on the board. In 118 out of the 186 companies in the sample, there were no female directors (63.4%). The companies with at least one female director on the board had, on average, more directors on their boards, a higher value of Tobin's Q and were larger. In addition, they also had less independent directors on their boards and younger supervisory directors as compared to the companies without female directors.

Table 2. Descriptive values of key variables.

Variable	Mean	Standard deviation	Min	Max
Share of women on board	.054	.080	.000	.400
Tobin's Q	2.299	1.701	.654	11.823
Board size	7.817	3.001	3	18
Share of independent directors	.551	.173	.000	.857
Average age supervisory directors	57.445	5.331	38.830	68.000
Firm size	12.148	2.609	2.596	17.509
Total number of firms: 186				

Table 3. Mean values of key variables for companies with and without female directors (standard deviation).

Mean values	Companies with at least one woman on board	Companies without women on board
Tobin's Q	2.671 (1.969)	2.085 (1.492)
Board size	9.618 (3.105)	6.780 (2.397)
Share of independent directors	519 (.182)	.570 (.166)
Average age of supervisory directors	56.330 (4.554)	58.087 (5.649)
Firm size	12.888 (2.669)	11.722 (2.486)
Total number of firms	68	118

Table 4. Results of OLS and 2SLS estimation of the relationship between firm performance and board gender diversity (standard errors reported in parentheses).

Independent variables	OLS Tobin's Q	2SLS Tobin's Q	OLS Tobin's Q	2SLS Tobin's Q
Board gender diversity (%)	2.408 (1.671)	9.031 (9.379)		
Board gender diversity (1/0)			.586** (.295)	1.389 (1.382)
Board size	.0683 (.0601)	.0158 (.0954)	.0440 (.0623)	−.0152 (.118)
Share of independent directors	−1.141 (1.015)	−1.901 (1.481)	−1.238 (1.009)	−1.749 (1.324)
Firm size	−.0470 (.0685)	−.0624 (.0731)	−.0474 (.0681)	−.0556 (.0694)
Firm age	−.00411* (.00222)	−.00486* (.00249)	−.00410* (.00220)	−.00446* (.00228)
Industry dummy (1 = services)	.401 (.289)	.358 (.301)	.370 (.288)	.307 (.307)
Country dummy (1 = Dutch)	.369 (.375)	.746 (.649)	.413 (.372)	.660 (.557)
Constant	2.693*** (.899)	3.206*** (1.162)	2.846*** (.901)	3.310*** (1.191)
N	186	186	186	186
R^2	.081		.089	

*$p < .1$; **$p < .05$; ***$p < .01$.

The results from the OLS and 2SLS estimations are reported in Table 4. In the first models, the independent variable board gender diversity is included as the percentage of women in the board. In addition, the models were tested using a dummy variable for board gender diversity, indicating 1 if there is at least one woman on the board.

Table 4 indicates that the estimated coefficients for board gender diversity are not positive when measured as percentage of women on boards. When measured as a dummy variable, the OLS shows a significant positive association ($p < .05$) between board gender diversity and firm performance suggesting that firms with boards with at least one woman do better than firms with male boards. However, this result disappears in the 2SLS analysis. This implies that the business case argument for board diversity

is not supported for this particular sample. Regarding Tobin's Q, a variable that matters is firm age. Firm age is found to be negatively associated with performance in all models, which may be related to the weakening ability over time of firms to compete, as argued by Loderer and Waelchli (2010).

In conclusion, based on our sample, our findings do not provide evidence that there is a causal relation between board gender diversity and firm performance. In this dataset, having (more) women on the board of directors does not result in a better – or worse – firm performance. While in line with the findings of similar European studies (e.g. Randoy et al., 2006; Rose, 2007), the results should be interpreted with caution as the sample is limited to listed companies in two small countries, using data from 2007. Moreover, due to data restrictions, only a limited number of (control) variables could be taken into account. In addition, future research might also benefit from a stronger instrumental variable.

Conclusions and discussion

The role of women as board directors and top corporate executives has become a very topical issue. Especially in the current time of economic crisis which is largely attributed to unsound risk management practices, there is debate whether the global economic picture would have looked less grim, had there been more women on the boards of directors of the distressed financial institutions (e.g. Nelson, 2013). The main argument used in this context is that women are different; more specifically women are more risk-averse and focus more on long-term perspective. The difference argument is also important in the business case for board gender diversity, which has been investigated empirically in this article. The article adds to the limited European evidence on the effect of board gender diversity on financial firm performance. We tested the hypothesis that board gender diversity will lead to positive firm performance effects. It appears, however, that this hypothesis is not supported by our sample of 186 listed firms in the Netherlands and Denmark. The results show no relation between the share/presence of women on boards and firm performance for these two countries and for the particular year of study.

Of course, this does not imply that the business case argument can be swept away in all future debate. The current study was based on data from listed firms, using standardised data and measures. Future studies may include more variables than our study could, in particular variables referring to board characteristics and organisational characteristics. For example, it might be interesting to include the strategic orientation of a firm as a difference may be expected from high growth orientation versus low growth orientation (e.g. Dwyer, Richard, & Chadwick, 2003). In addition, it seems useful to extend samples by including non-listed companies. In this case, instead of a market-based performance measure (Tobin's Q), an accounting-based measure could be used (e.g. ROA). Future research could also focus on panel data in order to deal with the limitation of studying a single year. If gender-related performance effects can be traced over several years, the quality and implications of the analysis will improve considerably, as dynamic factors will also be captured in the relationship. In addition, to deal with the issue of causality it seems interesting to extend the scope of the research by focusing on other performance events such as start-ups and mergers and acquisitions (e.g. Sudarsanam & Huang, 2007; Weber & Zulehner, 2010). Future studies could also focus on non-financial indicators such as innovation, corporate social responsibility (see for an example of the last Bear, Rahman, & Post, 2010) and organisational outcomes

such as job performance, promotions, recruiting success and problem solving (e.g. Hicks-Clarke & Iles, 2003).

Furthermore, it might be interesting to examine actual differences between male and female board members and the dynamics within the board. The scarcity of research on the underlying mechanisms and moderating effects in the relationship between board gender diversity and firm performance pinpoints the need for more efforts in this direction. Particularly investigating possible gender differences in risk propensity may be a fruitful direction for future research. There is extensive evidence that women are more risk-averse than men (e.g. Byrnes, Miller, & Schafer, 1999; Dohmen et al., 2005). Croson and Gneezy (2009), however, show that among the population of managers and professionals gender differences in risk taking are smaller and often non-existent. This could be the result of either selection or assimilation. Case studies seem an appropriate approach for studying the possible gendered nature of decision-making and providing to a more nuanced view of the contributions of men and women. It will be a particular challenge, though, to persuade companies to open up their boardrooms for this purpose.

A final remark refers to the female participation in top management. This is still very low, as also illustrated in this study. Although the share of women in Danish and Dutch boardrooms is among the highest in Europe, it is still considerably lower than the quota of 40% women in non-executive board positions in 2020 as proposed by the European Commission. Moreover, the majority of listed companies in the Netherlands and half of them in Denmark do not have female directors at all. In the EU proposal, and in the current discussions, the emphasis is on the business case of increasing female representation in top positions. However, there is no strong evidence to support this claim. This would imply that the argument for equal representation of women in top positions should rather be substantiated by equity consideration. Gender equality is not only a means to an end, but also a matter of social justice and therefore an argument in itself.

Acknowledgements

Disclosure statement

Notes

1. The 40% objective refers to the under-represented sex in non-executive board-member positions in publicly listed companies and could therefore also refer to men.
2. One might argue that the diversity variable should take into account the evenness of the distribution as simply using the share of women implies that values above 50% are considered as indicating more gender diversity. An example of a variable that does take this distribution into account is the Blau index which has a maximum of .5, when boards have an equal number of men and women (see e.g. Cambell & Mínguez-Vera, 2008). For the sake of simplicity, however, and because the maximum share of women in our sample is only 40%, we use the share of women as the variable indicating board diversity.
3. In case where exact data were missing, we applied the following procedure. If compliance with the corporate governance recommendation was stated in companies' annual reports or website, we considered half of the directors elected by the General Meeting as independent.

In the case of non-compliance, we took half the number of total supervisory directors elected by the General Meeting minus one to calculate the share of independent directors.
4. The results of the first stage are included in the Appendix 1. The coefficients of both instrumental variables are significant in case board gender diversity is measured as a dummy variable ($p < .01$), *F*-test for joint significance is above 4. While this *F*-statistic is rather low, this could be expected given the sample size. The instruments are somewhat weaker in case the share of women on boards is used as an indicator of board gender diversity. Sargan statistics show no overidentification.

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Appendix 1.

Mean values of key variables, by country.

Mean values	The Netherlands	Denmark	*t*-test
Share of women on board	.038	.074	3.033***
Tobin's Q	2.139	2.495	1.426
Board size	7.255	8.500	2.871***
Share of independent directors	.657	.424	−12.241***
Average age of supervisory directors	59.754	54.640	−7.397***
Firm Size	12.856	11.288	−4.268***
Number of firms	102	84	

***Indicates statistical significance between countries at the .01 level.

Results of the first stage of the 2SLS regression analysis (standard errors in parentheses).

Independent variables	Board gender diversity (%)	Board gender diversity (1/0)
Board size	.00669**	.0654***
	(.00266)	(.0149)
Share of independent directors	.110**	.604**
	(.0442)	(.248)
Firm size	.00363	.0190
	(.00308)	(.0172)
Firm age	.000135	.000593
	(9.82e-05)	(.000550)
Industry dummy (1 = services)	.00396	.0700
	(.0139)	(.0776)
Country dummy (1=Dutch)	−.0579***	−.319***
	(.0163)	(.0913)
Share of women in industry	.00823**	.0540***
	(.00334)	(.0187)
Share of women in industry squared	−.000129**	−.000861***
	(5.32e-05)	(.000298)
Constant	−.200***	−1.363***
	(.0649)	(.364)
N	186	186
R^2	.195	.301

*$p < .1$; **$p < .05$; ***$p < .01$.