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Thesis

Gender Diversity on the Board

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Abstract

In this thesis we examine the interaction between firm characteristics and gender diversity in the boardroom, focusing on large nonlisted firms. By studying certain governance characteristics in these firms, we document that firms with diverse boards may differ from those with less diverse boards.

Our results show that the share of family ownership in nonlisted firms matters for gender diversity on the board. Higher share of family ownership is related positively to the share of female stockholder-elected board directors, and may suggest that more directors are recruited within families. Consistent with our hypothesis we document that the CEO being female, leads to more female stockholder-elected directors, indicating that the CEO seems to have an impact on corporate policies in nonlisted firms. We find no evidence that performance interacts with gender diversity on corporate boards in nonlisted firms.

Acknowledgement

We would like to express our gratitude towards our thesis supervisor, Professor Øyvind Bøhren. Through Professor Bøhren we were introduced to the field of Corporate Governance and we are grateful for the knowledge we have gained on the area of study. He provided us with the initial topic for this thesis, as well as access to the CCGR-database. His feedback throughout the thesis process we consider invaluable and is highly appreciated.

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1 Introduction

1.1 Motivation

Boards are set up to function as an extra institutional layer between owners and managers. The three major concerns in board design are to align the interests of principals and agents, provide information for monitoring and support, and to enhance the board's effectiveness as a decision-maker. However, in the process of designing a well functioning board, fundamental problems arise. In terms of decisiveness, the question is whether the board should be big and diverse, increasing information availability, or if the board should be small and homogenous, such that decisions are made quickly and effectively. Despite ongoing discussions around board politics, existing research concerning how firms' characteristics and performance interacts with board diversity is modest.

Gender mix may create diversity, without necessarily increasing board size, as it expands the opportunity set if men and women differ in relevant ways. The purpose of our paper is to examine the interaction between firm characteristics and gender diversity, using the share of female stockholder-elected directors as dependent variable. Our contribution may give grounds for understanding gender diversity at decision-making levels. This is important as part of studying the likeliness of success of governance proposals with regards to gender diversity on corporate boards.

A limited liability firm can be either an AS (aksjeselskap) or an ASA (allmennaksjeselskap). The ASA legal form is mandatory for listed firms. In Norway all ASA must abide by a 40% gender quota for female and male directors as this is required by law. However, more than 99% of Norwegian enterprises are nonlisted AS firms, and thus not required to act in compliance with this quota. Our paper will address the board characteristics of nonlisted firms. Research on these firms is of interest since they account for a much larger fraction of value creation than listed firms. Extensive research is done on listed firms, but these findings may not be valid for nonlisted firms. Nonlisted firms stand before different challenges than listed firms. In nonlisted firms the owner concentration is higher, they have higher insider ownership, fewer board members, and

often individuals own the shares. These characteristics may matter for the firm's behavior, according to theory of corporate finance and governance.

63% of all firms in Norway are family firms. A firm may be defined as a family firm when 50%, or more, of the shares are owned by persons related by marriage or kinship (Böhren, 2009). Such a large fraction of nonlisted firms being classified as family firms makes it interesting to examine whether the extent of shares held by families affects gender diversity on corporate boards.

The thesis is organized as follows. In section 2, we provide an overview over theory and existing evidence. Section 3 discusses the methodology and hypotheses. In section 4 the descriptive statistics are presented, while section 5 and 6 discuss the statistical tests and the robustness tests.

2 Theory and existing evidence

The principal-agent theory predicts that when owners delegate to managers, agency costs are created since agents have incentives to pursue their own interests at the principals' expense (Jensen & Meckling, 1976). Nonlisted firms in general have higher ownership concentration, leading to low separation between ownership and control. In such firms, agency problems between owners and managers (A1) are considered less severe. On the other hand, potential conflicts between majority- and minority-owners (A2) in these firms will be higher due to the ownership structure. The two corporate laws (*Aksjeloven* and *Allmennaksjeloven*) protect the minority stockholders to some extent, but there is still room for areas of conflict that will not be solved by these laws. Majority owners may pursue own interests in a way which is unfair to minorities, for instance through tunneling.

Boards are set up as a link between owners and managers, aiming to reduce agency costs. There are three major concerns related to board design. These are; to align the interests of principals and agents, provide information for monitoring and advice, and to promote decision-making effectiveness. Interest alignment is determined mainly by ownership structure and the degree of independence between directors and managers (Böhren & Strøm, 2009). Separation between owners and managers decreases with increased ownership concentration. Higher ownership concentration again leads to higher incentives for principals to monitor management (Schleifer & Vishny, 1986). Since independent directors have less to lose in fights with management, they are considered better monitors than affiliated directors. Hence, they may be useful to ensure interest alignment through monitoring CEO. The information received by board directors is determined by the CEO (Lorsch & MacIver, 1989). Although, monitoring the CEO may be useful, Adams and Ferreira (2007) claim that increased independence may hurt the owners since CEOs respond to more director independence by providing less information. They assume that the quality of both monitoring and advice increases with information from CEO, and that independent directors have stronger monitoring incentives than dependent directors.

In terms of information for monitoring and advice Carter and Lorsch (2004) argue that the CEO should be on the board since he is in possession of superior information about

the firm, and will act more responsibly as a board member. On the other hand, agency theory suggests that self-monitoring does not work, and hence the CEO should not be part of the board which is supposed to monitor him (Bøhren & Strøm, 2009).

Norwegian nonlisted firms more often have their CEO as the chairman (Berzins, Bøhren, & Rydland, 2008). However, the fact that we are more interested in large nonlisted firms, where CEO as the chairman is less common, we do not pay much attention to this.

Several factors determine a board's effectiveness as a decision-maker. Board size and diversity affect the decisiveness-mechanism. If the board is large, one gets more input and a wider opportunity set. However, there exists a tradeoff between this opportunity set and potential conflicts in decision-making (Buchanan & Tullock, 1962). In smaller boards decision-time decreases, but more conventional decisions are made (Gjølberg & Nordhaug, 1996). Hence, board design is critical for the board's ability to make good decisions. In this context, the question is whether the board should be big and diverse, such that all information is available, or if the board should be small and homogenous such that decisions are made quickly and effectively. This decisiveness-mechanism will be our main focus throughout our thesis.

As mentioned, gender-mix could be one way of creating diversity, without necessarily increasing board size. Carter et. al (2003) states that diversity is believed to produce a more effective problem-solving. Although heterogeneity may lead to more conflicts during the process, the variety of perspectives causes decision-makers to evaluate more alternatives, and more carefully explore their consequences. Hence, gender diversity can increase board independence, both in terms of better monitoring and a wider opportunity set. The empirical paper of Adams and Ferreira (2008) find that diverse boards might be better monitors; directors (both male and female) attend more meetings, schedule more meetings, and a larger fraction of their compensation is equity based. In other theoretical papers it is argued that too much board monitoring can decrease shareholder value (e.g. Almazan and Suarez (2003) and Adams and Ferreira (2007)). There exists a conflict between monitoring and advice. Since the board's role is to monitor and give advice to the management, the CEO faces a tradeoff in disclosing information to the board. If he reveals his information, he gets better advice. However, a

more informed board will monitor him more intensively. Adams and Ferreira (2007) show that if independent directors have stronger monitoring incentives than dependent directors, more independence may hurt the stockholders. This happens because CEO responds to increased board independence by providing less information. This indicates that diversity is only considered valuable when firms need additional board monitoring. So, value is created only where greater independence is valuable.

Although several empirical papers address governance mechanisms, few concern gender diversity on corporate boards. However, there are papers we consider relevant for our thesis. These are presented below.

Bøhren and Strøm (2009) study all Norwegian listed firms from 1989 to 2002. They find that owners on the board and directors with multiple directorships relate positively to performance. Increased diversity produced by larger board size, more gender mix, and more employee directors all correlate negatively with performance. No significant link exists between independence and performance, supporting the notion that although more independence increases monitoring incentives, it reduces the management's willingness to share relevant information with the monitors.

Berzins, Bøhren and Rydland (2008) look into corporate finance and governance in firms with limited liability using the CCGR database. Contrary to other studies of private firms theirs is based on extensive information about these firms, which has previously been considered lacking. As they state themselves, their study is unique because it constructs and analyzes a high-quality data base for an unusually wide range of corporate finance and governance in the population of listed and nonlisted Norwegian firms with limited liability over the period 1994-2005. As our study is based on the same database we take special interest in their findings.

Berzins, Bøhren and Rydland (2008) find that most large owners in nonlisted firms are also on the board or on the management team, and more so when the largest owner is a person, when the firm is small, and when it is newly established. They also find that the largest inside owner mostly controls the stockholder meeting, and the CEO is often the largest stockholder. Thus, the separation between ownership and control is normally non-existent, regardless of firm size. Then A1 is negligible, while A2 is potentially big.

Including women on the board may therefore result in excessive monitoring. As a result management initiative may be reduced and managers become reluctant to share information with the board.

Adams and Ferreira (2008) use data from S&P500 firms collected by the Investor Responsibility Research Center (IRRC) for the period 1996-2003. They find that the average effect of gender diversity on both market valuation and operating performance is negative. This effect is driven by companies with greater shareholder rights. In firms with weaker shareholder rights, gender diversity has positive effects. Their results suggest that diverse boards are tougher monitors. Nevertheless, mandating gender quotas in the board room may not increase board effectiveness on average, but may reduce it for well-governed firms where additional monitoring is counterproductive.

Bjørge, Hansen and Tveteraas (2006) study the characteristics of Norwegian listed firms with women on the board. They conclude from their work that economic performance and the share of stockholder-elected directors make a difference to whether or not women are represented on the board. They find a negative relationship between both performance and share of female directors, as well as a negative relationship between the share of stockholder-elected directors and share of female directors. They also search for similar results with regards to firm size, board size, state ownership, board director's ownership, age of CEO as well as employee- and stockholder-elected ownership, but were not able to reveal any significant relations between these variables and the share of female board directors. Our study differs from the above since we are considering nonlisted firms only. We also exclude employee-elected board directors in our dependent variable. Hence we expect to obtain different results than Bjørge et al (2006). In addition, we study the share of female board directors in family owned firms. Bjørge et al were not able to study family firms due to lack of data.

To summarize, certain theories are particularly relevant for our research. First of all, independent directors are considered better monitors, and hence useful to ensure interest alignment through monitoring of the CEO. Although such monitoring may be useful, it is claimed that increased independence may hurt the owners since CEOs respond to more director independence by providing less information. Secondly, board size and gender diversity affect the board's decisiveness. However there exists a tradeoff

between large boards with wider opportunity sets and the potential conflicts in such firms during decision-making processes. Decision-time decreases when there are fewer board members, but more conventional decisions are made. Hence, the question is whether boards should be big and diverse, or small and homogenous. At last, gender diversity can increase board independence, both in terms of monitoring and wider opportunity sets. However, the theory that excessive monitoring may decrease shareholder value indicates that diversity is only considered valuable when firms need additional board monitoring. Hence, value is created only where greater independence is valuable.

3 Methodology

The purpose of our paper is to examine firm characteristics that can explain the share of female stockholder-elected directors on boards. The firm characteristics used are performance (ROA), fraction of shares held by largest ultimate family owner (family ownership) and CEO-gender. In the base case model our focus is large nonlisted firms. All nonlisted firms are then compared with all nonlisted firms. We will use the fixed effects model to handle the panel structure of our data set, described further in section 5.1. When interpreting the results we assume that female stockholder-elected directors act as independent directors. Adams and Ferreira (2008) use data containing a classification of director independence. Independent directors have no business relationship with the firm, are not related or interlocked with management and are not current or former employees. From this sample, women are found to serve primarily as independent directors (84.07% of female board positions). Adams and Ferreira (2008) also find that female directors appear to have similar impact as the independent directors described in governance theory. Based on the above, we assume that female stockholder-elected directors in our sample act as independent directors. The thesis scope will subsequently revolve around the following hypotheses.

3.1 Hypotheses

3.1.1 Hypothesis 1

The share of female stockholder-elected directors decreases with increasing past performance.

Adams and Ferreira (2008) find that gender diversity has significant effects on board governance. Their findings suggest that diverse boards appear to be tougher monitors since directors in such boards attend more meetings, schedule more meetings, and a larger fraction of their compensation is equity-based. At first, the correlation between diverse boards and firm value or operating performance appears to be positive. But after applying procedures to tackle omitted variables and reverse causality problems this correlation disappears. On average, firms' performance declines with greater gender diversity of the board. These findings indicate that diversity has positive effects in firms with weak shareholder rights, where additional board monitoring can enhance value, but detrimental effects in firms with strong shareholder rights. As mentioned in section 2,

there exists a conflict between monitoring and advice. For the CEO to get advice from the board, he must reveal his information, but intensive monitoring may cause him to hold back information instead. The nonlisted firms in our sample may be considered having strong shareholder rights due to their low separation between ownership and control. Based on the assumption that women may function as independent directors, who are considered better monitors, we expect an inverse relationship between ROA in the previous period and female stockholder-elected directors due to excessive monitoring.

There may be problems related to causation since gender diversity may affect performance (Adams & Ferreira, 2008). Adams & Ferreira (2008) argue that endogeneity may arise because gender diversity is correlated with omitted firm specific variables, such as corporate culture. They also argue that it may arise because past performance may influence firms' choices to select female directors. Performance is usually measured in the end of the year, while board members are elected in the middle of the year. When using past performance in our model we therefore take into account the causality effect.

3.1.2 Hypothesis 2

The share of female stockholder-elected directors decreases with higher share of family owners.

As mentioned, in nonlisted firms A2 is more severe than A1 due to low separation between ownership and control. The ownership structure in these firms allows agents to extract private benefits from the firm, for instance through tunneling. However, the closer the family owns all the shares, the more is internalized and you end up stealing from yourself. (Bøhren, 2009)

In family firms the largest owner often has complete control over shares. In all active Norwegian AS and ASA firms, the largest ultimate owner in those defined as family firms holds on average 92 % of the shares (Bøhren, 2009). Since the incentive to extract private benefits decreases with fraction held in jointly owned firms, A2 is smaller in family firms than in other majority firms with lower concentration. So, from the fact that both A1 and A2 are low in family firms, they seem to have solved the agency problems themselves through their ownership structure. Since A1 is very small there is no need for monitoring and there is moderate need for independent board directors. In addition,

there is no need for A2 control since A2 is rather small due to families carrying most of the costs. Based on the assumption that female directors function as independent directors, family firms may be less likely to include women on the board. On the other hand, in family-owned firms one may tend to recruit directors within the families that on average have 50% men and 50% women. If this is the case, we will obtain the opposite results.

3.1.3 Hypothesis 3

The share of female stockholder-elected directors increases when the CEO is female.

Adams, Almeida and Ferreira (2005) argue that executives' characteristics only impact corporate outcomes when they have influence over decision-making. According to Berzins, Böhren and Rydland (2008) the CEO is often the largest stockholder. Hence, we assume that CEOs in our sample have influence in decision-making. When the CEO is female, we expect a higher share of female stockholder-elected directors.

3.2 CCGR-database

CCGR pays special attention to the private industry in general and to nonlisted firms and family firms in particular. The CCGR database is constructed from data delivered by CreditInform which specializes in credit ratings. The database includes every firm with limited liability registered in Norway. It covers the period 1994 to 2007 for accounting information and general firm information, where data on governance is for the years 2000 to 2007. The governance data includes both first-layer and ultimate ownership (family firms). It also provides group structure information, such as what subsidiaries a parent owns and what parent a subsidiary is owned by. The database is considerably more extensive than what has been available for research purposes in the past. (Berzins, Böhren, & Rydland, 2008).

3.3 Filtering process

We remove all observations before year 2000 in the first filter, and use data from 2000 to 2007 due to availability of governance data in this period. The data on listing status for 2007 are not complete, thus we make the assumption that listing status for prior years also apply for 2007. We assume it is likely to find the same board members in subsidiaries as in the parent companies. Hence we exclude all subsidiaries in the second

filter. In the third filter we exclude all financial firms due to the different nature of these firms' accounting data compared to the other firms in our sample. We then eliminate firms without positive sales and assets. At this point we separate listed and nonlisted firms since our main focus is nonlisted firms. We are left with an average of 176,905 nonlisted firms over the entire sample period when all filters are applied. In our base case model we study the largest nonlisted companies.

4 Descriptive statistics

In this section descriptive statistics for firm size, female stockholder-elected directors, return on assets (ROA), fraction held by largest ultimate family owner (family owner) and CEO-gender are presented. We start by examining the size distribution of all firms, nonlisted firms and listed firms. A firm is classified as small if it has assets below €10 million. If assets are between €10 and €43 million it is classified as medium-sized firms. Everything above is considered large firms. This classification is made according to EU-standards (European Commission, 2009). Table 4.1 presents descriptive statistics for firm size for the year 2005.

Table 4.1: Aggregate activity levels for firms in three size groups

	Firms		Assets		Sales	
All firms						
Small	100,902	97.60%	532.36	19.66%	651.19	34.77%
Medium	1,779	1.72%	276.62	10.22%	188.52	10.07%
Large	697	0.67%	1,899.00	70.13%	1,032.95	55.16%
All	103,378		2,707.98		1,872.66	
Nonlisted firms						
Small	100,894	97.73%	531.95	26.98%	650.98	44.53%
Medium	1,736	1.68%	268.33	13.61%	185.08	12.66%
Large	609	0.6%	1,171.50	59.41%	625.73	42.81%
All	103,239		1,971.78		1,461.79	
Listed firms						
Small	8	5.76%	0.40	0.05%	0.20	0.05%
Medium	43	30.94%	8.29	1.13%	3.45	0.84%
Large	88	63.31%	727.51	98.82%	407.22	99.11%
All	139		736.20		410.87	

Table 4.1: Descriptive statistics for firm size (small, medium and large) according to their assets. Small firms have assets lower than €10 mill, medium has assets between €10 and €43 mill, while everything above is classified as large firms. “Sales” and “Assets” are in billions of NOK and “Firms” are in actual count.

We see from the table that most firms are small (97.6%). 1.72% of all firms are classified as medium firms, while the large ones only account for 0.67%. Still, in terms of activity measured by assets and sales, large firms stand for 70% and 55% respectively. Roughly 10% of sales and assets are accounted for by medium firms, and 20% of assets and 35% of sales by small firms. When looking separately at nonlisted firms, we find just about

the same pattern with small firms representing the vast majority. The fact that 97.6% of all firms are small explains why the distribution of nonlisted firms corresponds so well with the findings in all firms. For listed firms, though, 63% are found to be large and they account for 99% of the activity measured by assets and sales. Although, there is a much higher share of large firms within listed than nonlisted, there are still 697 large nonlisted firms as opposed to 88 large listed firms. Recorded assets for all firms in 2005 add up to 2,708 billions; under which nonlisted firms account for 1,972 billion and listed for 736 billion. We find that large nonlisted firms stand for 43% of total assets for all firms, while large listed firm have 27%. This finding supports our motivation for studying large nonlisted firms, since they account for a substantially higher activity than listed firms.

In the following, data for the 5 % largest nonlisted firms measured by the logarithm of sales, as well as all nonlisted firms is described. By extracting the 5% largest nonlisted firms, all firms classified as small are excluded from our sample. When examining their sales distribution it is found to be close to lognormal. Hence, we use the logarithm of sales to measure firm size.

Firms must be available for at least three years since we want to exclude firms with extreme fluctuations, and rather include firms that provide more information over time. There are a total of 730,674 observations for the 118,523 nonlisted firms over the period 2000 to 2007. In our sample of the largest nonlisted firms there are 32,823 observations for the 5888 firms. The total number of firms does not correspond exactly with those found by Berzins, Bøhren and Rydland (2008). One reason for this may be that we do not apply any filters concerning the number of employees. Berzins, Bøhren and Rydland (2008) state that their employment filter is the most restrictive of all filters, reducing their average sample size by 30%.

Firms in our sample are classified according to its NAIC industry codes as specified in appendix table 1.A3.

Figure 4.1: Distribution of observations large nonlisted firms

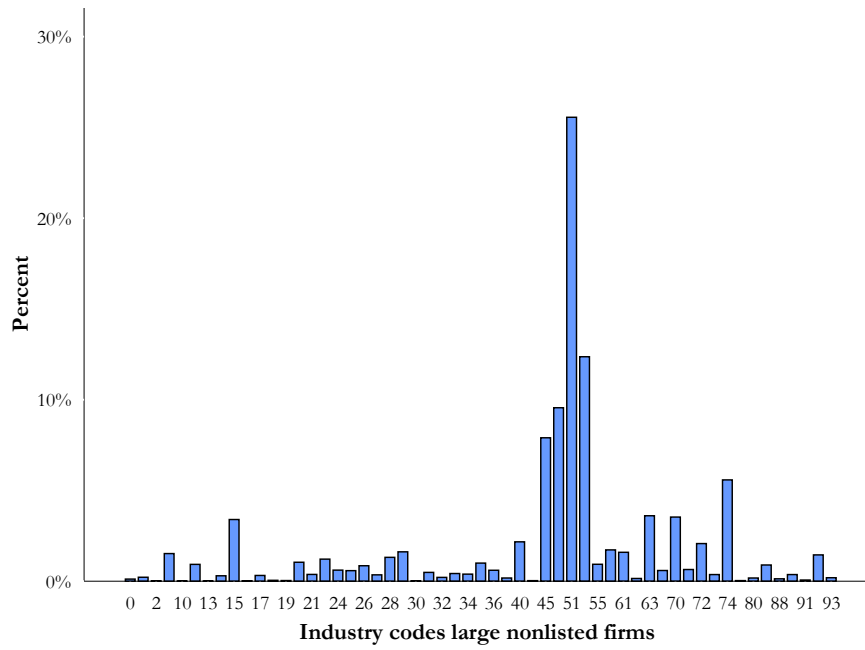


Figure 4.1 illustrates the distribution of observations per industry sectors for large nonlisted firms

Figure 4.2: Distribution of observations for all nonlisted firms

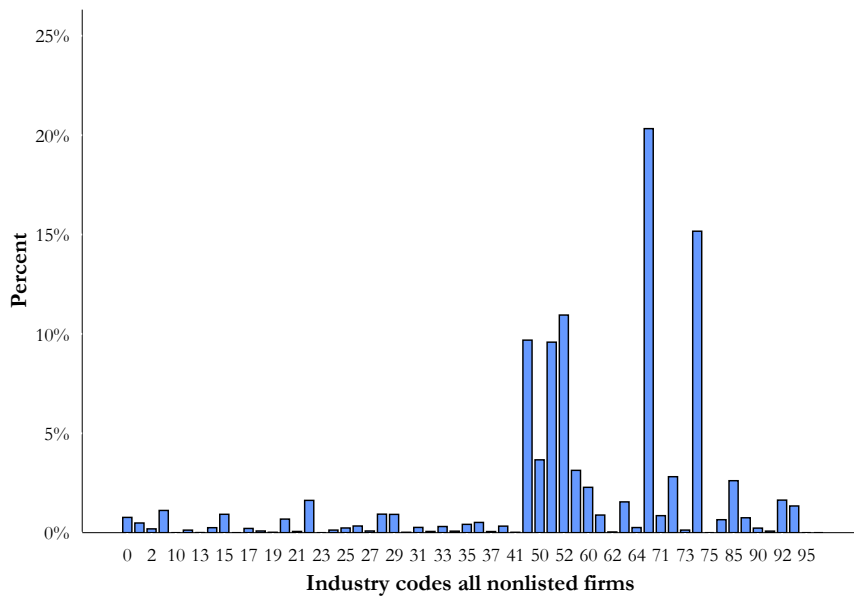


Figure 4.2 illustrates distribution of observations per industry sector for all nonlisted firms

When analyzing the distribution of observations for large nonlisted firms in Figure 4.1, they are unevenly distributed across industries. Four of the industry sectors account for 55% of all observations. These are “Construction”, “Motor Vehicle Services”, “Retail trade, repair personal goods” and “Wholesale trade, commission trade”.

In Figure 4.2 the distribution of observation for all nonlisted firms are presented. The four industries that account for most observations are “Construction”, “Retail trade, repair personal goods”, “Other business activities” and “Real estate activities”. These four industries account for 56% of all observations.

This uneven distribution must be taken into account when analyzing the share of female stockholder-elected directors.

4.1 Dependent variable

The total average percent of female stockholder-elected directors in our sample is 9.10% with a median of 0%. This indicates that there are some extreme cases in the dataset.

Descriptive statistics for the share of female stockholder-elected directors are presented in appendix 2.A3. The minimum value in percent of female stockholder-elected directors is 0% and the maximum is 100%. In 4,803 firms there are no female stockholder-elected directors, while 76 firms have 100%. Thus, in 65% of the firms there are no female directors on the board. Such skewness may influence our results since we assume normally distributed data when using OLS. The share of female directors increases during the sample period from 7% in 2000 to 10% in 2007. This may be due to increased focus in politics around recruiting women into corporate boards.

We want to examine whether female stockholder-elected directors are represented to a larger extent in certain industries. It is reasonable to assume that more female directors are represented in female market segments. When analyzing the whole sample before any filters, five industries have more than 25 % female stockholder-elected directors. These are “Textile Products”, “Retail trade, repair personal goods”, “Public Administration and Defense”, “Wearing apparel, fur” and “Other service activities”. This supports our expectations that firms directed towards female market segments have more female stockholder-elected directors. However, these industries account for an insignificant

share of observations in our sample. Therefore, we choose not to draw any conclusions based on these findings.

Figure 4.3 illustrates the distribution of female stockholder-elected directors of all observations in our sample. Obviously, the distribution is skewed to the right.

Figure 4.3: Distribution of female stockholder-elected directors for large nonlisted firms

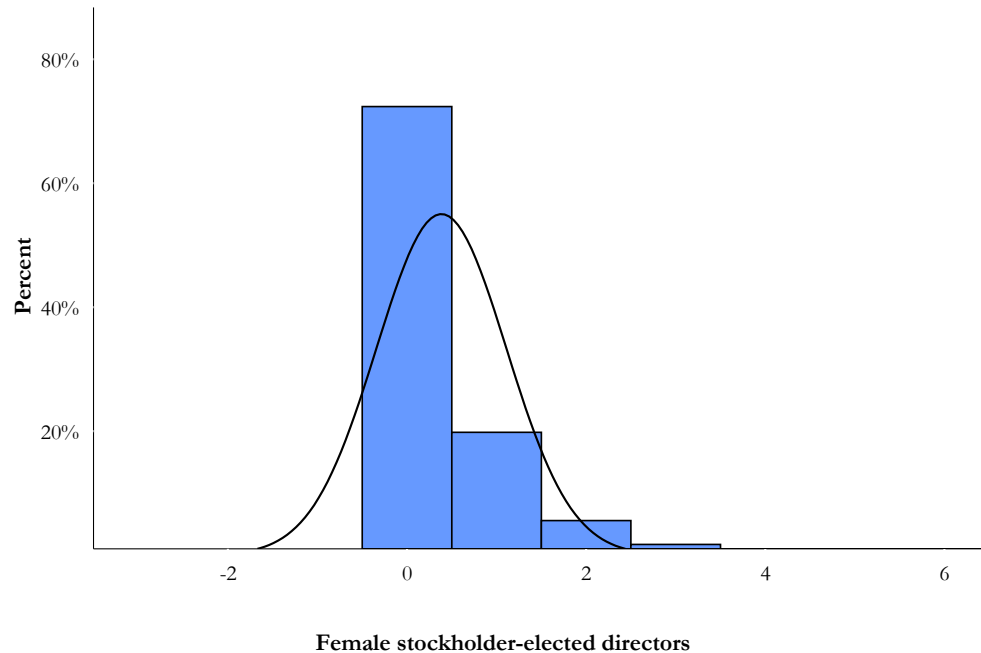


Figure 4.3 shows the distribution of female stockholder-elected directors in the sample for large nonlisted firms. The Y-axis measures the number of observations, while the X-axis is the number of female stockholder-elected directors.

4.2 Independent variables

In this section descriptive statistics of all independent variables are presented to obtain a better understanding of our data set. The independent variables used are return on assets (ROA), fraction held by largest family owner and CEO-gender. Firm age and firm size are used as control variables. During our sample period, no governance codes are implemented for nonlisted firms. As stated under descriptive statistics, we find an increase in the share of female stockholder-elected directors from 7% to 10%. Since there are no indications of substantial time effects, we do not control for time in the regression. In appendix 2.A4 we show descriptive statistics for all variables.

To measure performance return on assets (ROA) is calculated using the following formula:

$$\text{ROA} = \frac{\text{EBI}}{\text{Current assets} + \text{Fixed assets}}$$

We also exclude extreme outliers in return on assets.

EBI is defined as operating earnings before interest after tax. All earnings that may be related to the firms' operations are included. By using ROA we may disregard the debt structure of the firms. Appendix 2.A5 shows that the median ROA is higher for large nonlisted firms than for all nonlisted firms. The median ROA is 9% in all nonlisted firms and 11% for those defined as large, while the mean ROA is 9% and 13%, respectively. One possible explanation for the higher ROA in large firms may be the survivorship bias. Since our sample contains the firms with high operating income for at least three years, failed companies are excluded and we are left with the firms that survive our restrictions for three years or more. Our findings on ROA are consistent with those of Berzins, Bøhren and Rydland (2008), but our returns are found to be slightly higher. ROA is increasing over time from 9% to 11% for nonlisted firms as a whole, and from 12% to 15% for large nonlisted firms.

Family ownership is defined as the percent of shares held by the largest ultimate family owner. We find a decrease in largest ultimate family ownership of 15% from 2004 to 2005 showed in appendix 2.A6. This may be due to the lack of family data in the period up until 2005. The mean for all nonlisted firms is 77% while the median is 100%, indicating that the typical nonlisted firm is a family firm. However, for large nonlisted firms the mean decreases to 66% and the median goes down to 69%. Hence, large firms seem to be family owned to a lower extent. There are many missing values in the family ownership variable, that we have to take into account when we analyze the result.

The variable CEO gender has the value 1 if the CEO is female and 0 if male. Descriptive statistics for CEO gender is found in Appendix 2.A7. The fact that both mean and median is 0 indicates that there are by far most male CEOs in nonlisted firms, whatever the firm size. Hence, the CEO in a typical firm is male.

5 Statistical tests

5.1 Base-case model

Our data set contains repeated observations of the same firm for up to eight years. We use the fixed effects model to handle this panel data setting. Fixed effects allow us to control for unobserved explanatory variables and to analyze change over time. The more time points a firm is observed, the more information the firm provides. Hence, we only study firms that are present for at least three years to ensure that sufficient information is provided. The first step in the fixed effect model is to compute the mean for each company, for each variable, and subtract this mean from all observations. For variables that stay constant over time, the value in each year equals the average value across years. Hence, it cancels in the regression equation. When means are subtracted, we estimate the model using ordinary least-squares (OLS). (Petersen, 2004)

Table 5.1 shows results from OLS when estimating the base-case model by the fixed effects approach as described above. To control for other firm characteristics that can influence the dependent variable we control for firm size and firm age in the regression. The base-case model will be presented for large nonlisted firms as well as all nonlisted firms. We limit the attention to individual coefficients with a p-value of 10% or less.

Table 5.1: The relationship between gender diversity and firm characteristics

FE-models	Expected sign	Large firms		All firms	
		Coeff.	P-value	Coeff.	P-value
R ²		0.017		0.034	
Durbin-Watson		1.714		1.561	
N		17,762		538,130	
Independent variables					
Past performance	-	0.007	0.342	0.000	0.727
Family ownership	-	-0.017	0.022	0.019	0.000
CEO gender	+	0.080	0.000	0.178	0.000
Control variables					
Firm age		0.093	0.000	0.043	0.000
Firm size		0.003	0.688	0.004	0.005

Table 5.1 shows estimates of the base-case fixed effect regression model estimated with OLS. The dependent variable is percentage of female stockholder elected directors. Every variable is demeaned by subtracting a given firm's observation in a given year from the overall mean across the years. Only standardized coefficients are presented.

In Table 3.A1 in the appendix both standardized and unstandardized coefficients are presented. In our interpretation we focus on standardized coefficient to be able to infer economic significance.

When interpreting the coefficients in the base-case model, we find a positive relationship between past performance and gender diversity. However, our result is not statistically significant and the coefficient is not very strong. This is the case both for large firms, as well as all nonlisted firms. Adams and Ferreira (2008) and Bøhren and Strøm (2009) find the contrary, that gender diversity is inversely associated with performance. Neither finds very strong coefficients. Our insignificant findings may indicate that performance do not explain the share of female directors on corporate boards in nonlisted firms.

There is a negative relationship between family owners and the share of female stockholder-elected directors in large nonlisted firms. The result shows that a 10% increase in family ownership decreases female stockholder-elected directors by 0.17%. Thus, diversity on the board decreases with the extent of family ownership. The result is statistically significant at the 5% level. This is consistent with Hypothesis 2, that family

owned firms are less in need of independent directors. The family owners solve the agency problems themselves, and regulation or recommendation codes are unnecessary. This conclusion is made assuming that female stockholder-elected directors function as independent directors.

However, in all nonlisted firms, the coefficient is positive and significant at the 1% level. So, we find a different result when we do the regression on the whole sample of nonlisted firms. We have previously shown that the share held by the largest ultimate family owner is higher in all nonlisted firms than large. This may indicate that the higher share of family ownership, the more directors are recruited within families.

CEO gender has a positive impact on gender diversity and is both statistical and economic significant at the 1 % level. When the CEO is female, gender diversity increases in the boardroom. This indicates that the CEO may have an impact on corporate policies, consistent with our expectations in Hypothesis 3. The coefficient increases for all nonlisted firms, but we find it hard to draw any conclusions from this since few women are represented among the CEOs.

The base-case model gives an R^2 equal to 1.7%. Since Durbin-Watson statistic is 1.79 there is some evidence of positive autocorrelation, but the method of fixed effects makes the issue with autocorrelation less extensive than with pooled OLS. All Pearson correlation coefficients are less than 0.5, indicating no severe autocorrelation. When running the regression on all nonlisted firms the R^2 increases to 3.4%.

All together we find three significant variables. These are family ownership, CEO gender and firm age. In terms of policy implications, these findings provide no argument for regulating more gender diversity on the board, such as requiring by law or recommending by code.

6 Robustness

In this section we analyze the effect of ignoring fixed effects accounted for in section 5.1, and regress the model by using the mean calculated in the fixed effects model. We apply pooled OLS and the between-model to test the robustness of the basic model. The variables used are the same as in the basic model, but are no longer demeaned. In pooled OLS each observation on a firm is treated as a separate observation without reflecting that it comes from the same firm. Thus the grouped nature of the data is ignored, and the model does not tell us whether the response of explanatory variables over time is the same for all firms. In other words, we ignore the heterogeneity that may exist. As a consequence, the error term may be correlated with the explanatory variables. In this case, the estimated coefficients may be biased as well as inconsistent. (Petersen, 2004). In the between-model one computes an average value for each firm, on each variable, and uses this value as an observation. We then run regressions using ordinary least squares. This estimator makes comparisons between firms in their average outcomes. Compared to the base-case model, the data is used less efficiently, with only one observation per firm. (Petersen, 2004)

Table 6.1: The relationship between gender diversity and firm characteristics

Robustness	Large Firms		All firms	
	Pooled OLS	Between model	Pooled OLS	Between model
R ²	0.203	0.237	0.373	0.414
Durbin-Watson	0.649	1.963	0.515	1.988
N	17,762	3,949	538,130	98,910
Independent variables				
Past performance	0.010	-0.012	0.000	0.002
Family ownership	0.107***	0.109***	0.065***	0.073***
CEO-gender	0.427***	0.464***	0.603***	0.634***
Control variables				
Firm age	0.090***	0.089***	0.038***	0.038***
Firm size	-0.010	-0.018	-0,011***	-0.008***

Table 6.1 shows the results for the robustness tests using pooled OLS and between model. ***, **, * indicate significance at the 1 %, 5 % and 10 % level.

The important change in pooled OLS estimates from the base-case model for large nonlisted firms is that family ownership changes sign and the coefficient of CEO-gender

has increased. The Durbin-Watson statistic is 0.65, indicating that positive autocorrelation exists. The standard errors will then be underestimated, leading to overestimation of both the significance level and explanation power of the model. This may explain the higher R^2 of the model, and the increase in significance. For all nonlisted firms, no large changes are observed.

An ANOVA analysis of the pooled OLS regression residuals is performed. When the between firm variation is big, there are major differences between firms (Petersen, 2004). This is the case in our model. The second measure of variance measures the amount of variability within a firm across time. From the two components one get a sense of the main sources in the residual variation. In our case it seems that it comes from time constant variables that vary between firms. This may support that pooled OLS is not an appropriate method for handling the structure of the panel data.

With no misspecification, the coefficients from pooled OLS and the between estimator should be the same or close. In Table 6.1 we find the coefficients to be close, indicating little misspecification. The Durbin-Watson statistic is 1.949 when applying this method, indicating no autocorrelation. The standard errors are larger for the between estimator than for pooled OLS, reflecting the lower efficiency of the between estimator.

The principal drawback of the fixed effects model is that one can only estimate the effects of variables that vary over time. In our model the variables are very persistent. This can cause problems in our model because observations with no within-firm variation over time are not used for estimating the coefficients in the regression, so the data on such firms are ignored. Partly it does so because it uses up a large number of degrees of freedom in estimating the effects. (Petersen, 2004). The fact that the results from pooled OLS and the between model are close, shows that this can be the case in our model.

7 Summary and conclusions

In this thesis we have examined the interaction between firm characteristics and gender diversity in the board room for nonlisted firms. By looking at certain governance characteristics, such as performance, CEO gender and the fraction of shares held by largest ultimate family owner, we document that firms with diverse boards may differ from those with less diverse boards.

In contradiction to our hypothesis, firms' performance is found to relate positively to gender diversity among board directors in large nonlisted firms. The results are not significant and the coefficients are quite weak. Similar results are found for nonlisted firms, regardless of size. Empirical evidence from studying governance characteristics in listed firms, using performance as the dependent variable, suggests that performance relates negatively to gender diversity on the board. However, conclusions drawn from these findings does not necessarily apply to nonlisted firms. We interpret our findings as an indication that performance does not matter for whether female directors are appointed to corporate boards in nonlisted firms.

A negative relationship is found between the extent of family ownership and the share of female stockholder-elected directors in large nonlisted firms. The result is statistically significant and consistent with the hypothesis that nonlisted firms are less in need of independent directors. However, when examining this relationship for all nonlisted firms a positive relationship is found, now significant at a higher level. As shown in descriptive statistics, all nonlisted firms contain a higher share of family ownership than large nonlisted firms do separately. Hence, this finding may indicate that for firms with higher fraction of shares held by family owners, more board directors are recruited within families.

CEO gender significantly relates to the share of female stockholder-elected directors in a positive way. Consistent with our hypothesis we document that the CEO being female, leads to more female stockholder-elected directors in the boardroom. This may indicate that the CEO seems to have an impact on corporate policies in large, as well as all, nonlisted firms. On the other hand, descriptive statistics have shown that very few

women overall are elected as board directors in nonlisted firms. Hence, it becomes difficult to draw any conclusions with certainty based on such grounds.

By examining certain governance characteristics, we have found that firms with diverse boards are different from firms with less diverse boards. In our model we assume that this is the case because they act as independent directors. An interesting area of future studies could be whether such diversity can actually enhance board effectiveness in these firms.

7.1 Limitations

The fact that governance characteristics are examined for a period of only eight years, is considered a limitation of this thesis. The variables in our model are also very persistent, and can cause problems because observations with no within-firm variation over time are not used for estimating the coefficients in the regression. The fact that the results from pooled OLS and the between model are close, shows that this can be the case in our model. It would be interesting to study these characteristics over a longer period of time if data was available.

Another limitation of our paper is that we assume that female stockholder-elected directors act as independent directors. This will not always be the case. Diverse boards may be different from less diverse board simply because the board director is female, and not due to independence.

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Appendixes

Methodology

Table 1.A1: Items used from the CCGR-database

Item no.	Description
2	CEO gender
11	Operating income
19	Operating profit
24	Other interest received
25	Other financial income
63	Fixed assets
78	Current assets
127	Return on assets
402	Listing status
602	Board size
608	Female stockholder-elected directors
11103	Industry codes
13420	Firm age
14504	is_Subsiary
15302	Largest ultimate family owner

Table 1.A2: Definitions of corporate finance variables

Variable	Abbreviation	Definition
Operating Earnings Before Interest After Tax	EBI	{ [19 Results of operations] + [20 Income from subsidiaries] + [21 Income from other group entities] + [22 Income from associates] + [23 Interest received from group companies] + [24 Other interest received] + [25 Other financial income] + [26 Changes in marked value of financial current assets] } * { 1 - (-[34 Tax on ordinary result] / [33 Operating results before tax] or 28% if null) }
Total Assets	A	[63 Fixed assets] + [78 Current assets]
Sales	S	[11 Sum operating income] + [24 Other interest received] + [25 Other financial income]
Return on Assets	ROA	ROA: [EBI]/If([A]=0,Null,[a])
Percent of female stockholder-elected directors	Female stockholder-elected directors	{[608 Female stockholder-elected directors]/[602 Board size]}
Percent largest ultimate family owner	Family ownership	{[15302 Largest ultimate family owner]/100}
CEO gender	CEO gender	{1 if CEO is female, and 0 if CEO is male}

Table 1.A3: Classifying firms by their NAICS level 2 code

NAICS code	NAICS label
1	Agriculture and hunting
2	Forestry and logging
5	Fishing, fish farming, incl. services
10	Coal mining and peat extraction
11	Oil and gas extraction, incl. serv.
12	Mining of uranium and thorium ores
13	Mining of metal ores
14	Mining of metal ores
15	Food products and beverages
16	Tobacco products
17	Textile products
18	Wearing apparel., fur
19	Footwear and leather products
20	Wood and wood products
21	Pulp, paper and paper products
22	Publishing, printing, reproduction
23	Refined petroleum products
24	Chemicals and chemical products
25	Rubber and plastic products
26	Other non-metallic mineral products
27	Basic metals
28	Fabricated metal products
29	Machinery and equipment n.e.c.
30	Office machinery and computers
31	Electrical machinery and apparatus
32	Radio, TV sets, communication equip
33	Instruments, watches and clocks
34	Motor vehicles, trailers, semi-tr.
35	Other transport equipment
36	Furniture, manufacturing n.e.c.
37	Recycling
40	Electricity, gas and steam supply
41	Water supply
45	Construction
50	Motor vehicle services
51	Wholesale trade, commission trade
52	Retail trade, repair personal goods
55	Hotels and restaurants
60	Land transport, pipeline transport
61	Water transport
62	Air transport
63	Supporting transport activities
64	Post and telecommunications
65	Financial intermediation, less ins.
66	Insurance and pension funding
67	Auxiliary financial intermediation
70	Real estate activities
71	Renting of machinery and equipment
72	Computers and related activities
73	Research and development
74	Other business activities
75	Public administration and defense
80	Education
85	Health and social work
90	Sewage, refuse disposal activities
91	Membership organizations n.e.c.
92	Cultural and sporting activities
93	Other service activities
95	Domestic services
99	Extra-territorial org. and bodies

Descriptive statistics

Table 2.A1 Distribution of observations per industry sector for large nonlisted firms

NAICS code	NAICS label	Observations	%
1	Agriculture and hunting	65	0,22 %
2	Forestry and logging	6	0,02 %
5	Fishing, fish farming, incl. services	446	1,52 %
10	Coal mining and peat extraction	3	0,01 %
11	Oil and gas extraction, incl. serv.	272	0,93 %
13	Mining of metal ores	3	0,01 %
14	Mining of metal ores	88	0,30 %
15	Food products and beverages	996	3,40 %
16	Tobacco products	8	0,03 %
17	Textile products	93	0,32 %
18	Wearing apparel, fur	15	0,05 %
19	Footwear and leather products	12	0,04 %
20	Wood and wood products	307	1,05 %
21	Pulp, paper and paper products	110	0,38 %
22	Publishing, printing, reproduction	357	1,22 %
24	Chemicals and chemical products	180	0,61 %
25	Rubber and plastic products	171	0,58 %
26	Other non-metallic mineral products	250	0,85 %
27	Basic metals	103	0,35 %
28	Fabricated metal products	385	1,31 %
29	Machinery and equipment n.e.c.	475	1,62 %
30	Office machinery and computers	5	0,02 %
31	Electrical machinery and apparatus	143	0,49 %
32	Radio, TV sets, communication equip	62	0,21 %
33	Instruments, watches and clocks	124	0,42 %
34	Motor vehicles, trailers, semi-tr.	114	0,39 %
35	Other transport equipment	292	1,00 %
36	Furniture, manufacturing n.e.c.	178	0,61 %
37	Recycling	53	0,18 %
40	Electricity, gas and steam supply	636	2,17 %
41	Water supply	9	0,03 %
45	Construction	2315	7,90 %
50	Motor vehicle services	2799	9,56 %
51	Wholesale trade, commission trade	7485	25,56 %
52	Retail trade, repair personal goods	3622	12,37 %
55	Hotels and restaurants	274	0,94 %
60	Land transport, pipeline transport	506	1,73 %
61	Water transport	467	1,59 %
62	Air transport	45	0,15 %
63	Supporting transport activities	1056	3,61 %
64	Post and telecommunications	173	0,59 %
70	Real estate activities	1035	3,53 %
71	Renting of machinery and equipment	190	0,65 %
72	Computers and related activities	608	2,08 %
73	Research and development	108	0,37 %
74	Other business activities	1635	5,58 %
75	Public administration and defense	10	0,03 %
80	Education	52	0,18 %
85	Health and social work	263	0,90 %
90	Sewage, refuse disposal activities	108	0,37 %
91	Membership organizations n.e.c.	19	0,06 %
92	Cultural and sporting activities	425	1,45 %
93	Other service activities	57	0,19 %

Table 2.A2: Distribution of observations by industry sector for all nonlisted firms

NAICS code	NAICS label	Observations	%
1	Agriculture and hunting	3219	1 %
2	Forestry and logging	1285	0 %
5	Fishing, fish farming, incl. services	7386	1 %
10	Coal mining and peat extraction	17	0 %
11	Oil and gas extraction, incl. serv.	855	0 %
13	Mining of metal ores	42	0 %
14	Mining of metal ores	1653	0 %
15	Food products and beverages	6091	1 %
16	Tobacco products	10	0 %
17	Textile products	1409	0 %
18	Wearing apparel., fur	571	0 %
19	Footwear and leather products	126	0 %
20	Wood and wood products	4508	1 %
21	Pulp, paper and paper products	408	0 %
22	Publishing, printing, reproduction	10714	2 %
23	Refined petroleum products	14	0 %
24	Chemicals and chemical products	859	0 %
25	Rubber and plastic products	1581	0 %
26	Other non-metallic mineral products	2216	0 %
27	Basic metals	579	0 %
28	Fabricated metal products	6146	1 %
29	Machinery and equipment n.e.c.	6081	1 %
30	Office machinery and computers	130	0 %
31	Electrical machinery and apparatus	1758	0 %
32	Radio, TV sets, communication equip	406	0 %
33	Instruments, watches and clocks	2041	0 %
34	Motor vehicles, trailers, semi-tr.	506	0 %
35	Other transport equipment	2777	0 %
36	Furniture, manufacturing n.e.c.	3412	1 %
37	Recycling	402	0 %
40	Electricity, gas and steam supply	2174	0 %
41	Water supply	124	0 %
45	Construction	63826	10 %
50	Motor vehicle services	24145	4 %
51	Wholesale trade, commission trade	63143	10 %
52	Retail trade, repair personal goods	72137	11 %
55	Hotels and restaurants	20659	3 %
60	Land transport, pipeline transport	15037	2 %
61	Water transport	5855	1 %
62	Air transport	246	0 %
63	Supporting transport activities	10222	2 %
64	Post and telecommunications	1702	0 %
70	Real estate activities	133901	20 %
71	Renting of machinery and equipment	5634	1 %
72	Computers and related activities	18575	3 %
73	Research and development	873	0 %
74	Other business activities	99928	15 %
75	Public administration and defense	13	0 %
80	Education	4301	1 %
85	Health and social work	17222	3 %
90	Sewage, refuse disposal activities	1535	0 %
91	Membership organizations n.e.c.	530	0 %
92	Cultural and sporting activities	10814	2 %
93	Other service activities	8868	1 %
95	Domestic services	13	0 %
98	Extra-territorial org. and bodies	16	0 %

Table 2.A3: Descriptive statistics for female stockholder-elected directors

Percent female stockholder-elected directors														
	All nonlisted firms							Large nonlisted firms						
Year	Mean	Median	Min	Max	Std	Missing	N	Mean	Median	Min	Max	Std	Missing	N
2000	0.15	0.00	0.00	1.00	0.28	380	80,522	0.08	0.00	0.00	1.00	0.17	1	3,534
2001	0.16	0.00	0.00	1.00	0.28	346	87,341	0.08	0.00	0.00	1.00	0.17	8	4,022
2002	0.16	0.00	0.00	1.00	0.28	351	94,196	0.08	0.00	0.00	1.00	0.18	4	4,387
2003	0.16	0.00	0.00	1.00	0.29	90	96,329	0.09	0.00	0.00	1.00	0.18	8	4,452
2004	0.17	0.00	0.00	1.00	0.29	267	97,046	0.10	0.00	0.00	1.00	0.18	4	4,463
2005	0.17	0.00	0.00	1.00	0.29	398	97,775	0.11	0.00	0.00	1.00	0.19	7	4,353
2006	0.17	0.00	0.00	1.00	0.29	258	95,672	0.10	0.00	0.00	1.00	0.18	3	4,059
2007	0.18	0.00	0.00	1.00	0.30	201	80,550	0.10	0.00	0.00	1.00	0.18	0	3,295

Table 2.A3 presents descriptive statistics for the dependent variable percent female stockholder-elected directors, both for large and all nonlisted Norwegian firms that pass our filters as described in section 3.3.

Table 2.A4 Descriptive statistics for all independent variables

Variables												
	All nonlisted firms						Large nonlisted firms					
	Mean	Median	Std	Skewness	Kurtosis	N	Mean	Median	Std	Skewness	Kurtosis	N
ROA	0.09	0.09	0.51	-4.21	129.65	726,324	0.13	0.11	0.14	0.50	2.40	32,544
Family ownership	0.77	1.00	0.29	-0.80	-0.75	662,856	0.66	0.69	0.33	-0.37	-1.34	19,929
CEO gender	0.14	0.00	0.35	2.05	2.20	623,253	0.06	0.00	0.23	3.84	12.75	30,443
Firm age	11.91	9.00	12.65	3.25	17.39	693,800	17.44	13.00	16.51	2.46	8.01	30,635
Firm size	14 mill	2.01 mill	287 mill	153.19	34,652.91	729,431	203 mill	63 mill	1.3 bill	34.15	1,689.85	32,565

Table 2.A4 presents summary of descriptive statistics for all independent variables including control variables, both for large and all nonlisted Norwegian firms that pass our filters as described in section 3.3.

Table 2.A5: Descriptive statistics for return on assets (ROA)

Return on assets														
All nonlisted firms								Large nonlisted firms						
Year	Mean	Median	Min	Max	Std	Missing	N	Mean	Median	Min	Max	Std	Missing	N
2000	0.09	0.09	- 11.01	11.45	0.49	475	80,552	0.12	0.10	- 0.47	0.75	0.14	1	3,534
2001	0.08	0.09	- 11.26	11.09	0.49	436	87,341	0.12	0.10	- 0.48	0.75	0.14	1	4,022
2002	0.08	0.09	- 11.15	11.32	0.54	445	94,196	0.13	0.11	- 0.48	0.74	0.14	3	4,387
2003	0.08	0.09	- 11.25	10.64	0.51	384	96,329	0.12	0.10	- 0.47	0.73	0.14	4	4,452
2004	0.10	0.10	- 11.22	11.47	0.52	397	97,046	0.14	0.12	- 0.47	0.75	0.14	4	4,463
2005	0.09	0.09	- 11.27	11.06	0.50	384	97,775	0.13	0.11	- 0.47	0.73	0.14	3	4,353
2006	0.10	0.09	- 11.29	11.33	0.51	326	95,762	0.14	0.12	- 0.48	0.75	0.14	3	4,059
2007	0.11	0.11	- 11.00	11.17	0.47	260	80,550	0.15	0.13	- 0.46	0.74	0.14	2	3,295

Table 2.A5 presents descriptive statistics for return on assets over the sample period 2000-2007, both for large and all nonlisted firms.

Table 2.A6: Descriptive statistics family ownership

Family ownership														
All nonlisted firms							Large nonlisted firms							
Year	Mean	Median	Min	Max	Std	Missing	N	Mean	Median	Min	Max	Std	Missing	N
2000	0.76	1.00	0.00	1.00	0.29	6,636	80,552	0.69	0.75	0.00	1.00	0.33	1,177	3,534
2001	0.77	1.00	0.00	1.00	0.28	6,122	87,341	0.69	0.75	0.00	1.00	0.32	1,301	4,022
2002	0.77	1.00	0.00	1.00	0.28	6,830	94,196	0.69	0.75	0.00	1.00	0.32	1,436	4,387
2003	0.77	1.00	0.00	1.00	0.28	6,988	96,329	0.69	0.76	0.00	1.00	0.32	1,480	4,452
2004	0.77	1.00	0.00	1.00	0.28	7,834	97,046	0.68	0.75	0.00	1.00	0.32	1,517	4,463
2005	0.76	1.00	0.00	1.00	0.30	12,534	97,775	0.59	0.51	0.00	1.00	0.35	2,148	4,353
2006	0.76	1.00	0.00	1.00	0.30	12,344	95,762	0.58	0.50	0.00	1.00	0.35	2,022	4,059
2007	0.78	1.00	0.00	1.00	0.29	7,987	80,550	0.62	0.58	0.00	1.00	0.34	1,555	3,295

Table 2.A6 presents descriptive statistics for percent of largest ultimate family owner over the sample period 2000-2007, both for large and all nonlisted firms.

Table 2.A7: Descriptive statistics for CEO gender

CEO gender														
All nonlisted firms								Large nonlisted firms						
Year	Mean	Median	Min	Max	Std	Missing	N	Mean	Median	Min	Max	Std	Missing	N
2000	0.00	0.00	0.00	1.00	0.00	12,811	80,552	0.00	0.00	0.00	1.00	0.00	278	3,534
2001	0.00	0.00	0.00	1.00	0.00	13,523	87,341	0.00	0.00	0.00	1.00	0.00	324	4,022
2002	0.00	0.00	0.00	1.00	0.00	14,051	94,196	0.00	0.00	0.00	1.00	0.00	363	4,387
2003	0.00	0.00	0.00	1.00	0.00	14,727	96,329	0.00	0.00	0.00	1.00	0.00	373	4,452
2004	0.00	0.00	0.00	1.00	0.00	13,427	97,046	0.00	0.00	0.00	1.00	0.00	347	4,463
2005	0.00	0.00	0.00	1.00	0.00	13,215	97,775	0.00	0.00	0.00	1.00	0.00	163	4,353
2006	0.00	0.00	0.00	1.00	0.00	13,986	95,762	0.00	0.00	0.00	1.00	0.00	153	4,059
2007	0.00	0.00	0.00	1.00	0.00	10,438	80,550	0.00	0.00	0.00	1.00	0.00	121	3,295

Table 2.A7 presents descriptive statistics for CEO gender over the sample period 2000-2007, both for large and all nonlisted firms.

Statistical tests

Table 3.A1: The relationship between gender diversity, firm characteristics and controls

FE-models	All nonlisted firms			Large nonlisted firms		
R ²	0.034			0.017		
Durbin-Watson	1.561			1.714		
N	538,130			17,762		
	Unstandardized	Standardized	p-value	Unstandardized	Standardized	p-value
Independent variables						
Performance	0.000	0.000	0.727	0.005	0.007	0.342
Family ownership	0.016	0.019	0.000	-0.012	-0.017	0.022
CEO gender	0.144	0.178	0.000	0.060	0.080	0.000
Control variables						
Firm age	0.002	0.043	0.000	0.003	0.093	0.000
Firm size	0.000	0.004	0.005	0.001	0.003	0.688

Table 3.A1 shows estimates of the base case fixed effects regression model estimated with OLS. The dependent variable is the percent of female stockholder-elected directors. Every variable is time demeaned by subtracting a given firm's overall mean across the years. The first column reports unstandardized variables coefficient estimates. The second column shows the estimates based on the standardized variables. The p-value in the third column is identical for the unstandardized and the standardized coefficient. Results are presented both for large and all nonlisted Norwegian firms over the sample period 2000-2007, and the variables is defined in table 1.A2.

Table 3.A2: The relationship between gender diversity, firm characteristics and controls

Robustness	All nonlisted firms						Large nonlisted firms					
	Fixed effects		Pooled OLS		Between estimator		Fixed effects		Pooled OLS		Between estimator	
	Unstandar dized	Standar dized	Unstandar dized	Standar dized	Unstandar dized	Standar dized	Unstandar dized	Standar dized	Unstandar dized	Standar dized	Unstandar dized	Standar dized
R ²	0.034		0.373		0.414		0.017		0.203		0,237	
Durbin- Watson	1.561		0.515		1.988		1.714		0.649		1.963	
N	538,130		538,130		98,919		17,762		17,762		3,949	
Independent variables												
Past performance	0.000	0.000	0.000	0.000	0.001	0.002	0.005	0.007	0.014	0.010	-0.020	-0.012
Family ownership	0.016***	0.019***	0.067***	0.065***	0.074***	0.073***	-0.012**	-0.017**	0.062***	0.107***	0.061***	0.109***
CEO gender	0.144***	0.178***	0.504***	0.603***	0.526***	0.634***	0.060***	0.080***	0.372***	0.427***	0.411***	0.464***
Control variables												
Firm age	0.000***	0.004***	0.001***	0.038***	0.001***	0.038***	0.003***	0.093***	0.001***	0.090***	0.001***	0.089***
Firm size	0.000***	0.004***	-0.002***	-0.011***	-0.001***	-0.008***	0.001	0.003	-0.003	-0.010	-0.006	-0.018

Table 3.A2 shows estimates of the robustness tests, Pooled OLS and Between model, estimated with OLS. The dependent variable is percentage of female stockholder elected directors. Table 1.A2 defines the variables, and the sample is large and all nonlisted firms from 2000-2007. ***, **, * indicate significance at the 1 %, 5 % and 10 % level