

# Accounting quality effects of imposing gender quotas on boards of directors<sup>‡</sup>

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# **Accounting quality effects of imposing gender quotas on boards of directors**

## **Abstract**

We study the consequences on accounting quality of imposing quotas on boards of directors. We focus on a 2003 Norwegian law requiring that 40 percent of directors be women as a unique setting to test whether the mandatory inclusion of board members affects the level of monitoring exerted by boards. Using a hand-collected sample of board members' personal characteristics we find that, after the quota, new board members are younger and have less executive experience than the board members they replace. We hypothesize that these younger and less experienced new board members affect the level of monitoring exerted by the board. To study the effects of these new board members on boards' monitoring, we investigate earnings management and find that firms undertaking greater board changes to fulfill the quota are more likely to record abnormal levels of the accrual component of earnings after the passage of the law. These effects over monitoring are short-lived, as they are clustered around the period when the changes on boards resulting from the new quota occur. We also find that the effects of the quota on earnings management are associated with differences in the professional characteristics and current occupation of the directors (like prior experience as CEO or being currently a CFO) and not with the gender of the directors. We conclude that the introduction of the female quota for board members in Norway led, at least in the short run, to boards with lower monitoring capabilities which, in turn, are less capable of constraining earnings management.

**Keywords:** quotas; mandated changes on boards of directors; monitoring; earnings quality; accruals; affirmative action; gender; women; Norway

## **1. Introduction**

Gender quotas on boards of directors are an increasingly important issue for regulators around the world. At a national level, several countries have plans or have set objectives regarding the participation of women on corporate governance (Deloitte [2013]). Norway was the first country to implement a law imposing a minimum percentage (40 percent) of women on boards. Belgium, France, Italy, the Netherlands and Spain have issued corporate legislations including policies to increase gender diversity on boards of directors. In November 2012, the European Union’s Commissioners approved a plan forcing companies listed in the EU to reserve at least 40 percent of their board seats for women by 2020. However, several European countries oppose the forced incorporation of female board members, and suggest that gender policies on corporate governance should be tackled differently. In the United States there is no explicit regulation regarding gender diversity on boards. This heterogeneity in the regulation of gender diversity on boards may be associated with the existing paucity of empirical evidence on the effects of quotas.

The consequences of imposing quotas—aimed to redress discrimination against women and minority groups—are unclear. Some scholars believe these actions improve the participation of the targeted social group on highly competitive jobs, as politics (Beaman et al. [2009], Balafoutas and Sutter [2012]). However, other authors have negative opinions of the effects of quotas over economic outcomes (Holzer and Neumark [1999a], [1999b], [2000], Mollerstrom [2012]).

We contribute to this debate by analyzing the effects of the introduction of quotas on the monitoring role of boards of directors. To this end, we use the Norwegian “Rules for Gender Representation” quota (thereafter Gender Quota) issued as voluntary in 2003,

which imposes a minimum female representation of 40 percent on boards of directors. The Gender Quota became compulsory in 2006—with a two years transition—after the failure of voluntary compliance. The penalty for delinquent firms was liquidation. By 2008, 40 percent of Norwegian Public Limited Companies' board seats were occupied by women. We can safely conclude that, between 2005 and 2008, many Norwegian firms were forced to conduct sometimes drastic changes in the composition of their main corporate governance body. We hypothesize that those drastic changes on board composition affected the level of monitoring exerted by Norwegian boards.

This natural experiment has already been the subject of research. Ahern and Dittmar [2012] provide evidence that there is a negative relation between the increase in the percentage of women on boards due to the Gender Quota and the value of Norwegian firms, measured by Tobin's Q. In a related study, Bøhren and Staubo [2014] find evidence suggesting that firms affected by the Gender Quota tend to switch legal forms to avoid the consequences of the legislation. Finally, Matsa and Miller [2013] find that firms affected by the Gender Quota undertake fewer workforce reductions, and that this leads to increases in labor costs and employment levels and to decreases in short term profits. Overall, these papers document that the Gender Quota, at least in the short run, had a negative influence on firm's value and corporate governance.

We extend these studies and analyze the effect of the Gender Quota on the monitoring role of corporate boards. To do so, we examine whether the implementation of the quota affected firms' accounting policies, and, in particular, earnings management. We first explore the profiles of board members using a hand-collected panel of personal attributes and characteristics of 4,000 Norwegian board members during the 2002 – 2010 period. We

find that Norwegian firms replaced male board members with females in an attempt to fulfill the quota, instead of increasing board size. We find evidence that after the Gender Quota, new female board members are qualitatively different from exiting men. On average, these new female board members are younger, have lower executive experience, and have more education compared to the exiting male board members that they replace. Consequently, after the Gender Quota, Norwegian firms' boards are qualitatively different from boards before the quota. We posit that these new, qualitatively different boards have lower monitoring skills on average than boards before the quota. Our evidence of differences in the qualitative attributes of directors in the pre- and post-quota periods is consistent with Ahern and Dittmar's [2012] results.

As an outcome of the monitoring skills of the board, we explore the quality of accounting numbers. As a proxy for the quality of accounting numbers, we use unsigned abnormal accruals. We assume that the level of abnormal accruals is an outcome of the monitoring process, where better monitoring leads to a lower level of abnormal accruals. In our setting, firms forced to appoint more new female directors to comply with the Gender Quota requirements could, in fact, reduce the monitoring ability of the board over management. Consistent with our hypothesis that personal attributes and characteristics of new directors may hinder the monitoring ability of the board, we find that, after the Quota, companies that incur in higher costs to comply with the requirements of the quota have higher levels of abnormal accruals. Our results are robust to the inclusion of controls for known sources of earnings management.

In a second set of tests, we explore the effects of the quota over time. Firms can, over time, find adequate substitutes to highly skilled board members that are replaced as a result

of the quota. Also, board members in office appointed after the quota may obtain the adequate skills to become good monitors. Our results indicate that during the last years of our sample, the difference in earnings management between groups disappear, consistent with the notion that the quota may only have negative effects during the period where higher board changes occur. The results are consistent with the evidence in Ahern and Dittmar [2012] and Bøhren and Stauvo [2014] that the Gender Quota was costly in terms of firm value for shareholders of Norwegian companies. Nevertheless, this effect seems to be short-lived, and clustered around the period where board changes were the highest. Finally, we study the association between abnormal accruals and board characteristics. As described before, newly appointed female board members are qualitatively different than exiting males. Consistent with this, we find that earnings management is associated with differences in the professional characteristics of the directors (like prior experience as CEO or CFO) and not with the gender of the directors.

Overall, our results provide evidence consistent with the endogenous relation between firm's characteristics and its optimal corporate governance structure (Adams et al. [2010]), and with the importance of the board of directors as a monitoring mechanism. Also, our results are consistent with the negative consequences of quotas on the hiring of skilled workers, at least in the short run, as suggested by Holzer and Neumark [1999a, 1999b]. Since European governments are currently considering imposing gender quotas, our results indicate that such affirmative actions could have negative effects, though possibly only in the short run, in terms of corporate governance and, consequently, on shareholders' interests. Finally, prior research analyzing the relation between gender and accounting quality (Barua et al. [2010], Srinidhi et al. [2011], Abbott et al. [2012], Francis et al.

[2014]) focuses on the US, a setting where the selection of executives and directors is not regulated. Our research contributes to this literature by exploring a different setting, where the selection of female board members is regulated and a minimum percentage of female directors is imposed externally, through regulation.

The paper is structured as follows: Section 2 reviews the literature on affirmative action and quotas; it also describes the Norwegian Gender Quota and presents our research hypothesis. Section 3 explains the sample construction and the research design. Section 4 presents the main empirical results, and robustness checks. Section 5 studies the relationship between discretionary accruals and board characteristics. Finally, Section 6 concludes.

## **2. Literature review, background and hypothesis development**

### *2.1. Prior evidence on the effects of affirmative action programs*

Affirmative action programs aim to improve the status of minorities and women in the labor market and other areas (Holzer and Neumark [2000]). A common type of affirmative action is the imposition of gender or minorities quotas. Although widely proposed in political arenas, there is no clear consensus among scholars about the effects and consequences of affirmative action. In particular, proponents of gender quotas call for the historical underrepresentation of women in high profile jobs. This difficulty for women to access top positions is, generally, accepted in the literature. Bilimoria and Piderit [1994] document sex-bias toward board committee memberships, since women are more likely to be appointed to public relation committees rather than executive committees. Westphal and Stern [2006, 2007] provide evidence of women facing different types of discrimination in accessing board positions. Moreover, evidence of the preference of men over women with

the same abilities for top positions is also found in other areas, such as in biomedical research (Wenneras and Wold [1997]) or in leading symphony orchestras (Goldin and Rouse [2000]).

The imposition of gender quotas guarantees an increase in the participation of women in high profile jobs, breaking the so-called glass ceiling from above. The glass ceiling is defined as an invisible barrier that limits the access of females to top positions in the corporate world. Proponents of quotas suggest that although the presence of women in managerial and public service positions is increasing over time, once they reach a certain position in the company (the glass ceiling) it seems impossible for them to move further upward (Cotter et al. [2001]). As the presence of women in top positions is fostered by quotas, other women may reach top positions by themselves. These new entrants may benefit from the observed labor outcomes of women who accessed highly competitive positions previously through quotas, which may eliminate biases in social norms (and stereotypes) regarding women's capabilities. Women who access top positions through quotas may also become role models for other women. In a study of female quotas for local governments in India, Beaman et al. [2009] provide evidence consistent with these benefits of quotas in the long run, and Balafoutas and Sutter [2012], using a lab experiment, also provide evidence consistent with these positive effects of quotas.

An expected additional positive effect of an increased female participation in top managerial positions (either enforced through quotas or not) is reduced discrimination practices against female workers at the lower echelons of the organization. In particular, Tate and Yang [2014], who focus on an unregulated environment, without quotas, show that firms with more women in the top decision-making processes implement more female



friendly policies that decrease the gender pay gap between male and females with the same occupation in the same firm.

On the other hand, opponents to gender quotas argue that quotas may lead to the hiring of less qualified workers. In this sense, Welch [1976], Lundberg [1991] and Coate and Loury [1993] conclude that the imposition of quotas leads to suboptimal solutions on contracting problems. Holzer and Neumark [1999a] find that the use of affirmative action programs leads to the hiring of minorities or female employees who are less qualified, and Mollerstrom [2012] documents uncooperative behavior in groups formed with quota-based selection rules. Directly analyzing the Norwegian case, Bertrand et al. [2014, p.1] conclude that “the reform had very little discernable impact on women in business”, beyond those that were appointed because of the quota. Finally, the use of quotas for public employment is banned in several US states, which suggests that a number of legislators have a negative opinion about the effects of quotas.

## *2.2. The Norwegian gender quota for boards of directors*

Even though many countries are considering legislative changes to foster the presence of women on boards, Norway was the first country enforcing a minimum ratio of women in the board of directors of public limited liabilities companies—or ASA in Norwegian, which stands for *Allmennaksjeselskap*—. Through the “Rules for Gender Representation” quota the Norwegian government imposed a minimum female representation of 40 percent on boards of directors for public limited liabilities firms.

The first informal announcement of the quota was made on February 22<sup>nd</sup>, 2002. This public announcement was highly unanticipated, and was made public after a meeting between a journalist and Ansgar Gabrielsen, Minister of Trade and Industry. In December

2003—almost two years after the informal announcement of the quota—the Norwegian Parliament passed an amendment to the Public Limited Companies Act, establishing a demand for gender balance in the companies' boards. The agreement between the Norwegian government and the private sector was that if the companies achieved a minimum gender representation on boards of 40 percent voluntarily before July 2005 there would be no penalties for delinquent firms. However, by July 2005, only 13.1 percent of the affected firms achieved the desired female representation: overall, only 16 percent of board members were women, a percentage lower than the targeted 40 percent.

After voluntary compliance failed, the rules requiring a minimum 40 percent female representation on boards of public limited liabilities companies became compulsory on January 1<sup>st</sup> 2006, and companies had two years (up to January 1<sup>st</sup> 2008) to comply with the law. Also, all new listed companies after January 1<sup>st</sup> 2006 had to fulfill the gender quota to be registered in the Oslo Stock Exchange. The penalty for noncompliance was the liquidation of the delinquent company. By April 2008—six years after the informal announcement of the quota—all Norwegian public limited companies fulfilled the Gender Quota. Figure 1 presents the increase of female presence on Norwegian boards for the firms in our sample during the period 2002 – 2010.

Norwegian companies' managers and owners complied with the Gender Quota with significant resistance. In particular, they complaint about the lack of qualified female candidates (Storvik and Teigen [2010]). Ahern and Dittmar [2012] provide early evidence supporting the quota opponents' claim that, at least in the short run, there was a lack of qualified candidates. Ahern and Dittmar [2012] find that new female board members are younger and have less experience as executive managers or owner/partnership experience than retained and exiting male board members. In contrast, new female board members

have more formal education. Similarly, Storvik [2011] conducted a survey on Norwegian board members at the beginning of 2009. Among the surveyed board members who answered that the Gender Quota had a negative effect on the board's work after the reform, their main reason for arguing a negative effect is that new female board members lack important skills and insight. Our data about board members' personal attributes provide evidence consistent with that of Storvik [2011] and Ahern and Dittmar [2012].

### *2.3. The effect of the quota on the quality of accounting numbers*

Our main research hypothesis combines the evidence that the Norwegian pre and post-Gender Quota boards are qualitatively different (Ahern and Dittmar [2012]), with the evidence of affirmative action programs leading to the hiring of individuals that are not the best suited for the type of work (Holzer and Neumark [1999a]).

Regarding who is better suited to monitor the financial reporting decisions of top managers, prior research shows that the influence of directors on the financial reporting system depends upon whether the directors have prior experience in preparing or auditing financial statements. There is evidence that firms with a larger number of directors with accounting expertise are less likely to present accounting irregularities (Badolato et al. [2014]), that firms with more financial experts in the audit committee suffer less internal control problems (Krishnan [2005]), and that accounting expertise in the audit committee is linked to more conservatism accounting numbers (Krishnan and Visvanathan [2008]) and improved accruals quality (Dhaliwal et al. [2010], Krishnan et al. [2011]). Also, capital market participants value the presence of directors with accounting backgrounds in audit committees (DeFond et al. [2005]), and even prior research uses directly accounting expertise in the audit committee as a proxy for accounting quality (Engel et al. [2010]).

There is also prior evidence that accounting/financial literacy (education) is not enough, and that prior experience is key to ensuring financial reporting quality (McDaniel et al. [2002]).

However, firms that had to make large changes to their board because of the quota will find it difficult to find candidates to board directorships with the proper characteristics. This lack of adequate candidates was in fact one of the main criticisms to the quota (Storvik [2011]), and the results in Ahern and Dittmar [2012] are in line with Norwegian boards after the law having younger and less experienced members. We expect that this lower experience will hinder the monitoring capability of boards of directors of the most affected firms. This lower monitoring capability will, in turn, permit managers to engage in earnings management activities that will not be detected by the board. Given this, our main hypothesis as follows:

*H: Firms forced to perform greater changes due to the Norwegian Gender Quota are more likely to suffer from a reduction in the monitoring ability of the board of directors. This reduced monitoring ability is expected to lead to increased earnings management practices.*

### **3. Sample and research design**

#### *3.1 Sample*

To test our hypothesis, we hand collect demographic and professional information about Norwegian CEOs and board members from several sources. For each board member

and CEO we obtain the name, gender, and birth date from the Norwegian Business Register. We also record the nationality, education, prior experience as a CEO, current occupation and year elected to the board to compute tenure.<sup>1</sup>

We collect board and CEO information for companies that fulfill three conditions: (1) their financial statements information, needed to run our tests, is available on the Bureau Van Dijk's Osiris database from 2000 until 2010; (2) they were public limited liabilities companies—the organizational form affected by the quota—at the time of the informal announcement by the Ministry of Industry and Trade (2002); and (3) they were listed on the Oslo Stock Exchange before the passage of the stricter version of the Gender Quota in 2006. These three conditions yield a sample of more than 4,000 person-year observations, for an unbalanced panel of 81 firms: we have data on 8 firms through 2008, 4 firms through 2009 and 69 through 2010.<sup>2</sup> Although all public limited liability companies are affected by the Quota, we focus on listed companies to test our hypothesis. We do this for two reasons. First, while the quota is mandatory for both types of firms, non-listed firms find it much easier and less costly to change legal status to avoid complying with the quota. However, delisting can be quite costly, and, therefore, one might think that the quota law is actually only compulsory for listed firms. Consistent with this argument, Bøhren and Staubo [2014] show that a large percentage of private firms affected by the quota law changed their legal status. Second, financial reporting incentives for listed and unlisted firms vary substantially (Burgstahler et al. [2006]).

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<sup>1</sup> An extensive description of each item collected is provided in Appendix A.

<sup>2</sup> The firms in our sample represent a variable fraction of all non-financial firms listed in the Oslo Stock Exchange for the period 2001 - 2010. This fraction fluctuates between 65 percent (in 2003) to 48 percent (in 2007).

CEOs and board members' biographical information comes from annual reports. If any of the information for a given board member is missing from the annual report, we check either other firms' reports or look for alternative sources of bio sketches, such as Business Week or the Forbes online service of executive profiles and biographies. We also obtain additional information from the Osiris and Amadeus databases. We match director-level data with firm level data to calculate the average at the firm level of the following variables: percentage of female board members, age, directors' tenure, prior CEO experience of directors, level of studies, and current occupations. As in Ahern and Dittmar [2012], if more than a half of a firm's board members data are missing for any variable, we drop the firm-year observation when we perform tests related to board composition or board characteristics.

### *3.2 Identification strategies*

The passage of the Gender Quota affected all public limited liabilities companies in Norway, but its impact on these companies varied as many already had an important number of women on their boards. Some companies were even fulfilling the minimum level of gender diversity imposed by the Gender Quota before the Quota's informal announcement in 2002. To analyze the impact of the Quota we implement a difference in difference approach and separate firms into those that were greatly affected by the Quota from those that were not, and analyze the differences between them. Since one can define the magnitude of the impact of the Quota on a firm in different ways, we perform our tests using two different identification strategies (ways to define what it means to be greatly affected by the Quota). In both cases, we separate companies into a *treatment group* (the

group of companies that are greatly affected by the Quota), and a *control group* (those companies that are not greatly affected by the Quota).

Our first identification strategy classifies companies according to whether the company had female board members as of 2002, the year of the first (and informal) announcement of the Quota. This identification strategy is based on the premise that it is the qualitative presence of a female member on the board that determines whether the impact of the Quota is going to be important or not. A company that already had a female director in 2002 may find it easier to find and incorporate female board members without any major alteration of the functioning of the board. This can be the case because these firms have already in place proper mechanisms to identify the individuals that are better suited to become directors (for example, well-functioning nomination committees). Given the existence of these mechanisms, identifying additional women with the desired characteristics can be something that they can accomplish more easily than firms that do not have those mechanisms in place. This identification strategy yields the following groups: (1) the control group, composed of firms with at least a female board member in 2002, includes 26 firms (32 percent of the sample); (2) the treatment group, composed of firms with no female board members in 2002, includes 55 firms (68 percent of the sample).

In our second identification strategy we look at how far each company is from complying with the Quota. Because there is heterogeneity in the total number of board members, distance to compliance with the quota could be measured either in absolute terms (number of board members replaced) or in relative terms (percentage of board members replaced). We focus on absolute distance, total number of new female members needed, although a classification in terms of relative distance leads to only minor changes in the control and treatment groups and the same qualitative results.

In our sample, companies have five board members on average. Thus, under the conditions of the Quota, an average board is required to include at least two board members of each gender. This proportion varies slightly conditional on the board's size: small boards with three members must include at least a board member of each gender, whereas boards with nine members (the largest in our sample) have to include four representatives of each sex. For our analysis, we classify a company as greatly affected by the Quota (the treatment group) if it had to hire two or more female board members, while firms that had to hire none or one female director make up the control group. Table 1 shows the number of companies per board size in 2007, and the number of female board members that were added to the board between 2002 and 2007. As we can see in Table 1, the control group contains 19 firms (24 percent of the sample) and the treatment group 62 firms (76 percent of the sample).

To check that the two groups of firms (treatment vs control) differ only on the expected effects of the quota, and not on some other firm characteristics, in Tables 2 and 3 we study the differences in size, leverage, cash, assets turnover and profitability across the two groups. Table 2 includes the differences between groups classified using strategy one (female presence on the board in 2002). The only difference we find between treatment and control firms is that companies in the control group are larger (i.e. they have higher book value of assets and more employees). Larger companies have more board members, allowing for an easier incorporation of women to boards (Hillman et al. [2007]). Other variables related to firm characteristics are not significantly different between groups, which justifies our method of analysis. Results in Table 3 for identification strategy two (distance from Quota) are in line with those for identification strategy one.



Further evidence that our criterion does indeed capture the impact of the Quota on companies comes from the fact that among all the firms in our sample that did not comply with the requirements of the Quota on the mandatory date (1<sup>st</sup> January 2008), and that were given a 4 week extension to comply or be liquidated, none had female board members in 2002 (they were all in the treatment group). We do not find evidence of this or other problems in complying with the Quota for firms in the control group.<sup>3</sup>

### 3.3 Discretionary accruals measure

Given the size of our sample of Norwegian firms we use the measure of discretionary accruals proposed by Francis and Wang [2008], adapted from DeFond and Park [2001]. This measure allows the computation of discretionary accruals for small samples. Discretionary accruals (DAX) are defined as the firm's total accruals in year  $t$  minus the firm's predicted total accruals for year  $t$ . In the Francis and Wang [2008] model, predicted accruals are based on the firm's previous year ratio of current accruals to sales and the firm's prior year's ratio of depreciation expense to gross property, plant and equipment (PPE). The model is, thus, using a firm's own prior year accruals in calculating the expectation benchmark.

The model is as follows:

Predicted accruals $_{i,t}$  =

$$\frac{\left\{ \left[ Rev_t * \left( \frac{Current\ accruals_{t-1}}{Rev_{t-1}} \right) \right] - \left[ PPE_t * \left( \frac{Depreciation_{t-1}}{PPE_{t-1}} \right) \right] \right\}}{TA_{t-1}} \quad (1)$$

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<sup>3</sup> A total of 72 Norwegian firms violated the January 2008 deadline, receiving a letter from the Norwegian Business register giving them 4 week notice to comply with the Gender Quota (Norwegian Minister of Children, Equality and Inclusion). Of these, only eleven are in our sample.

where  $TA$  is total assets (S13077),  $REV$  is total sales (S13004),  $PPE$  is gross property, plant and equipment (S20245), Depreciation (S13019) is total depreciation. Current accruals is defined as the difference between the change in current assets (S13061) and the change in cash and short term investments (S20070) minus the difference between the change in current liabilities (S14011) minus the change in short term debt (S22110).<sup>4</sup> Discretionary accruals (DAX) are then defined as the firm's total accruals in year  $t$  minus predicted total accruals for year  $t$ .

Given that we need changes in current assets and liabilities to calculate current accruals, the model requires two years of previous information to compute the abnormal level of accruals of the current year. Consequently, we can estimate yearly abnormal accruals from 2002 onwards for the firms in our sample. We drop observations with discretionary accruals above the 99<sup>th</sup> percentile in absolute value. As it is common in prior research linking corporate governance mechanisms and financial reporting quality (i.e., Klein [2002]; Faleye et al. [2011]), we use the absolute value of the discretionary accruals ( $absDAX$ ). Larger values of  $absDAX$  indicate poorer earnings quality.<sup>5</sup>

### 3.4 Main model: Effects of the Gender Quota on accounting quality.

We use the following equation to test our hypothesis:

$$absDAX_{i,t} = \beta_0 + \beta_1 Quota_{No\_Fem_i} + \beta_2 Quota + \beta_3 No\_Fem_i + \beta_x Controls_{i,t} + fixed\ effects + u_{i,t} \quad (2)$$

where  $absDAX_{i,t}$  is the unsigned value of abnormal accruals from the Francis and Wang [2008] model; the variable  $Quota$  takes value one for the 2005-2010 time period, which is

<sup>4</sup> As in Leuz et al. [2003] and Burgstahler et al. [2006] if a firm does not report information on short-term debt, then the change in the variable is assumed to be zero.

<sup>5</sup> We replicate our tests using discretionary accruals to the power of two, instead of the absolute value. Unreported results are in line with those in the main tables.

when firm's boards are experiencing higher changes and three years into the time period when the Quota constraint is binding;<sup>6</sup> the variable *No\_Fem* takes value one if the firm *i* belongs to the treatment group for any of our identification strategies, namely firms with no female board members in 2002 (strategy one) or firms forced to hire two or more female board members to fulfill the Gender Quota (strategy two); the interaction term *Quota x No\_Fem* proxies for firms with higher Gender Quota's compliance cost, during the years where the mandatory quota was binding and board changes were the biggest (2005 – 2010). We include a set of controls for known sources of discretionary accruals (size, leverage, growth, profitability and a dummy variable equal to one if the firm had losses on the previous year). We also include industry (two-digit SIC) fixed effects and industry clustered errors.

The main coefficient of interest is that of *Quota x No\_Fem*,  $\beta_1$ . A positive and significant coefficient will tell us that companies that are highly affected by the Gender Quota are recording significantly higher levels of unsigned discretionary accruals during the period when the mandatory quota was binding and board changes were the biggest, than those companies least affected by the Quota.

## **4. Empirical results**

### *4.1 Effects of the Quota on board composition over time*

A key effect of the Quota is that it generated unusually large changes in company boards. Norwegian firms in our sample started to make substantial changes to their boards due to the Gender Quota in 2005, at the end of the voluntary compliance period. The hiring of female board members peaked in 2007, the last year of the transition period after the

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<sup>6</sup> In Section 4.3 we consider alternative (shorter) time periods and the results are qualitatively the same.

issuing of the mandatory quota. Note also that the number of new female entrants in 2008 was still high although firms were already fulfilling the 40 percent target, which implies a high level of turnover for female board members during that year.

In the process of understanding the effect of the Quota, we must look at whether the changes were not only large but also if they led to the hiring of new directors that were substantially different (not only gender-wise, but also regarding their professional backgrounds) than the directors they replaced. Indeed, one of the main arguments of quota opponents was that a lack of qualified candidates would have a negative impact on companies. Table 4 Panel A describes the average characteristics of boards and board members and Panel B identifies the concurrent outside occupation of board members over the time period of our study. Overall, we find that the total number of members in a board remains stable around five. This shows that firms that needed to increase the percentage of female board members to comply with the quota did not just hire additional female directors, thereby increasing the size of the board. Instead, they replaced male by female board members. We also find that the number of board members with CEO experience decreases. The percentage of insiders (board members that receive remuneration from the firm other than compensation for board membership) also decreases.

As mentioned before, panel B of table 4 shows the outside occupation of board members over the time period of our study. After the quota, the percentage of board members working in non-executive positions such as non-executive officer or CFO increases over time. Also, more executive oriented positions such as owner/partner decrease.<sup>7</sup> In unreported results, we replicate Table 4 with firms with no female board

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<sup>7</sup> We classify board members working currently as owner/partner if they declare to be: partner, principal, owner, self-employed, independent, founder or/and investor.

members in 2002; the results are similar to, but stronger, than the changes reported for all the firms in the sample.

Table 5 summarizes the average attributes of new, retained and exiting male and female board members, and the analysis of statistical differences in the means of these attributes between new female board members and retained and exiting male board members.

In Panel A of Table 5, we find that new female board members are on average 9 (7) years younger than retained (exiting) male board members. New women members are also less likely to be firm insiders or a major shareholder.<sup>8</sup> Also, new female board members have lower executive experience, almost 41 percent (37 percent) less compared with retained (exiting) male board members. However, entrant women are on average more likely to have Norwegian graduate education than exiting and retained men.<sup>9</sup> In terms of current occupation—Panel B of Table 5—new female board members have a different distribution of occupations than retained and exiting male board members. Specifically, new female members are more likely to occupy non-executive positions. In contrast, new female members are less likely to be board members in other firms, and they are less likely to be CEOs or owner/partners. Hence, the aforementioned reduction in the proportion of board members with CEO experience or working currently as owner/partners is attributable to the inclusion of female board members, who are less likely to have executive experience. Moreover, new male board members show no significant differences with respect to exiting men (last column of Table 5). Overall, our evidence of board changes is consistent with the evidence provided by Ahern and Dittmar [2012] and the survey by Storvik [2011].

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<sup>8</sup> We define as a major shareholder a board member who owns directly or indirectly 5 percent or more of the companies' shares.

<sup>9</sup> We define as a Norwegian Graduate a board member who has Graduate level education from a Norwegian institution.

We conclude that this descriptive evidence is consistent with Norwegian boards being now more diverse in terms of experience, education and current occupation than they were before the quota. This diversity is, though, at the expense of members with experience in executive or owner/partnership positions.

#### *4.2 The effect of the Quota over accounting quality*

Table 6 summarizes the results of the estimation of model (2), described in Section 3.4, using identification strategy one (female presence on the board). In column (1), the coefficient for *Quota* identifies the effects that are common to all companies during the period when firms' boards experience higher changes and three years into the period when the Quota constraint is binding (from 2005 to 2010)—this effect is statistically insignificant. Column (2) considers the effect of belonging to the affected group over the whole sample period in isolation. This effect is positive and weakly significant (at the 10% level). Finally, column (3) considers both the common time effect, membership to the treatment group, and the interaction term—belonging to the treatment group during the transition period. The coefficient *QuotaxNo\_Fem1*, ( $\beta_1$ ) is positive and statistically significant at standard levels (coefficient 0.039, *t-stat* 2.22).

Thus, from Table 6, we conclude that firms with no female representation in 2002 are more likely to report higher levels of abnormal accruals over the period when changes to the boards were more pronounced and after the mandatory introduction of the quota (2005-2010). This evidence suggests that the Gender Quota negatively affected the level of monitoring exerted by boards, as reflected in higher discretionary accruals, for the firms most affected by the quota, in the period 2005-2010.

We repeat the analysis in Table 6 with the second identification strategy (distance from Quota) and gather the results on Table 7. The results lead to the same conclusions, as the coefficient *QuotaxNo\_Fem2* is positive and significant (coefficient 0.040, *t-stat* 2.04). The results with the second identification strategy support our argument that firms that had to hire more women to meet the Quota reported higher levels of discretionary accruals.

Overall, the results from Tables 6 and 7 suggest that after the passage of the mandatory Gender Quota the companies that were most affected by the Quota saw a reduced monitoring activity from their boards. These results are in line with the view that firms optimally choose their boards (Adams et al. [2010]), appointing directors with certain attributes to optimize control over the firms' management, and with the imposition of the Gender Quota acting as an exogenous shock to these optimally chosen boards. The mandatory inclusion of members from a restricted pool of candidates in a short period of time hindered the monitoring capabilities of boards from the time of the introduction of the quota until the end of our sample period (2005-2010). We now turn to study the temporal aspects of the Quota in greater detail.

#### *4.3 The effects of the Gender Quota over time*

A key question is how the effects of the Quota on earnings quality that we identify in our prior tests (Tables 6 and 7) behave over time; whether they persist over time or are clustered around the initial years, when boards are experiencing greater changes. If the effects that we identify are driven by the compulsion of replacing board members over a relatively short span of time and from a limited pool of candidates, then it is not clear whether the effects should persist over time. The need to hire new board members over a short period of time would lead to boards with a large percentage of new directors with

lower experience and lower monitoring abilities. However, with the passage of time, the overall monitoring skills of the board can return to the pre Quota level. This return to the pre-quota monitoring level can be achieved through two channels: a) by an improvement in the monitoring capabilities of the existing board members thanks to their experience as board members in the company, or by an improvement in the directors' status as tenure increases, and/or b) by the replacement of less qualified board members by directors with more experience in accounting matters. Regarding the first channel, about directors improving their monitoring skills because of gaining experience and understanding better the firm, prior research suggests that experience as board members in the firm will not contribute to make directors better monitors of the accounting system (Kim et al. [2014]). However, it can be the case that directors with a good monitoring background (with accounting expertise) could not affect the financial reporting system because of, as being a newcomer, having a low status in the firm, and a lower ability to influence the overall view of the board (Badolato [2014]). Therefore, as tenure increases, there directors would gain status and would be more able to influence board decisions. If this is the case, the monitoring ability of the board could increase with the passage of time.

Regarding the second channel, we observe that even in 2008, there is a high percentage of replacement among board members. This large replacement rate that could in fact respond to attempts at improving the monitoring skills of board members, replacing less experienced by more experienced directors. If the learning effect, or the increase in directors' status in a) takes place, or if the firm hires better board members over time, then we expect that, over time, the monitoring differences between control and treatment firms will tend to disappear.



To study the temporal aspects in greater detail we consider several alternative definitions of the *Quota* variable and summarize our results in Table 8. In particular, we consider using the periods 2005 – 2009 (columns (1) and (2)), 2005 – 2008 (columns (3) and (4)) and 2009 – 2010 (columns (5) and (6)). Results are as follows: We find that the coefficients on the *QuotaxNo\_Fem* in Columns (1) to (4) from Table 8 are positive and significant, consistent with the results in Tables 6 and 7. However, *QuotaxNo\_Fem1* and *QuotaxNo\_Fem2* are not significant for columns (5) and (6) implying that during the period 2009 – 2010 the Gender Quota had no effect over monitoring.<sup>10</sup> Results are consistent with our assumption that the effects of the Gender Quota are clustered around the time period when boards experience higher changes, specifically the time period 2005 – 2009. We choose these time periods given the rate of female entrants: even though firms must comply with the quota in January 1<sup>st</sup> 2008, still in 2008 the appointment of new female directors remains high. Moreover, during the year 2009 female board members' turnover was low, implying that the same directors of 2008 were in office.

Unreported univariate tests are consistent with these results, suggesting that the difference in the level of earnings management between the treatment and control groups of firms appears in the period between 2005 and 2009, and disappears in 2010. Overall, these results are consistent with the expectation that the Gender Quota effects on monitoring are short lived, and clustered around the years when firms suffered greater changes in board composition to fulfill the quota.

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<sup>10</sup> We re-estimate columns 5 and 6 dropping the years 2005 to 2008 from the sample (the years where changes to the boards were more pronounced). With this, we focus on the differential effects of 2009 and 2010, with respect to the period before the introduction of the massive changes to the boards (in particular, 2002 to 2004). Results also show that there is no difference in discretionary accruals between the two periods. This provides additional evidence that the effects of the quota over monitoring were short-lived.

#### 4.4 Robustness Tests

##### 4.4.1 Measuring the effects using the Ahern and Dittmar approach

Ahern and Dittmar [2012] analyze the effect of the introduction of the Quota on firm value using an instrumental variable approach. Even though the gender quota provides an exogenous shock to boards' composition, Ahern and Dittmar [2012] raise concerns about the strategic timing of quota's adoption by managers and shareholders. As the authors state, male board members could give up their board's position in advance of the firm's poor performance, or firms may relocate to a foreign country or go private to avoid the law. To address this, Ahern and Dittmar [2012] use as an instrument the pre-quota variation in female board representation across firms. As all firms have to comply with the targeted 40 percent quota, firms with a higher proportion of female members are less time-constrained when it comes to fulfilling the Quota than firms with a lower proportion of female members.

We repeat our analyses using the pre-quota percent of women board members as the independent variable. We do this using both the period (2003 – 2010) and the one proposed by Ahern and Dittmar [2012] (2003 – 2009), including year-specific dummies to control for market wide time effects. Table 9 presents the results.

We find that the instrument has a weakly positive and significant coefficient (0.164, *t-stat* 1.71) for the period 2003 – 2009, but not for 2003 – 2010 (0.133, *t-stat* 1.57). We interpret the positive and significant coefficient as an additional support to the negative effect of the quota on the quality of accounting numbers. More interestingly, the effect seems to disappear when year 2010 is included. This result strengthens our findings that the quota's effects were short lived, and clustered around the years when changes are taking place.

#### 4.4.2 *Extending the sample and implementation of Jones-type discretionary accruals models*

Given the relatively small sample size we work with, we cannot use directly typical measures of discretionary accruals estimated at the industry-year level. However, if we extend our sample and include firms from countries with similar accrual generating processes, we can construct the Jones measure of discretionary accruals for the Norwegian firms in our sample. To extend our sample, we use the institutional clustering in Leuz et al. [2003], where Norwegian firms are clustered together with those in Denmark, Finland, Sweden and the UK. We then extend our sample by including the firms from those four countries with data availability in Osiris, and estimate the Jones [1991] discretionary accruals model in cross-section for each industry-year but for all countries considered together. Even after clustering with firms from these four countries, there are some industry-year combinations without enough observations to estimate the model (we impose a minimum of 7 observations per two digit industry-year combination). Given this, we are not able to estimate accruals for all the Norwegian firms in our sample, and we had to drop 25 firm-year observations overall.

Using the abnormal discretionary accruals estimated in this fashion, we replicate our main tests using the new unsigned discretionary accruals and regressing them against the *QuotaxNo\_Fem* and the set of control variables (as in Model (2)). We explore different specifications and combinations of countries but results are inconclusive.

This is not entirely surprising, given that the use of the Jones model in international settings has been criticized in the literature for failing to capture earnings management. In an international setting, differences in institutional and economic diversity amongst

countries may increase the noise in the estimation so much as to make it impossible to detect earnings management (Peek et al. [2012]).

#### *4.4.3 Use of balanced panels*

We also analyze the robustness of the results using a reduced set of firms for which we can build balanced panels. Therefore, we repeat the analysis of Tables 6 and 7 for the 73 firms with data for the period 2002 – 2009 and the 69 firms with data for the period 2002 – 2010. Again, we find the interaction coefficient *QuotaxNo\_Fem* to be positive and significant using the 2002 – 2009 panel for both identification strategies. When we use the smaller sample that is complete for the 2002 – 2010 period, we only find significant results for identification strategy one. This result is in line with the effects concentrating around the years when the changes to the boards were more pronounced.

## **5. Board characteristics and accounting quality**

### *5.1 Board members personal attributes and characteristics*

Thus far, we have focused on determining what effect, if any, the introduction of the Quota had on earnings management. A simplistic interpretation of the above results would link the negative effects we have found to the gender of the new board members. However, as we report in the descriptives (Tables 4 and 5), the changes associated with the introduction of the Quota did not just affect the gender of board members, but it also led to changes in the overall distribution of the skills and characteristics of the boards. Thus, the natural next step is to identify what skills or characteristics are more closely associated with the negative effects of the Quota. We thus proceed by first estimating the relationship

between changes in board gender diversity and board characteristics, and then turn to study the relationship between discretionary accruals and board characteristics.

In a first set of tests, we use the pre-quota percentage of women on the board as an explanatory variable of several board characteristics. In particular, we explore the relationship between having a greater percentage of women on the board and: board size, average board age (as a proxy for overall experience), proportion of members with experience as CEO, major shareholders, and the proportion of board insiders. The results are consistent with the descriptive statistics in Table 5. Once the Quota is implemented and the proportion of female board members increase, the proportion of board members with CEO experience diminishes. Also, while the average board is younger, the size of the board remains constant.

To continue our analysis, we look at the relationship between these board characteristics and unsigned discretionary accruals. Table 11, column (1) contains the results for the regression of the main characteristics (Female, board size, age, major shareholder, CEO experience and CEO experience squared) plus the usual controls. In column (2) CEO experience (and its squared) are replaced by a set of dummy variables indicating the presence on the board of a member working currently in any of the following occupation: vice-president, consultant, professor, CEO, non-executive officer, CFO, accountant or lawyer.

We find that the proportion of variable female board members is not significantly associated with earnings quality (coefficient -0.056, *t-stat* -1.06). On the other hand, the presence of major shareholders is negatively associated with the level of discretionary accruals (-0.05, *t-stat* -1.86), while CEO experience has a statistically significant non-linear effect. When we replace CEO experience with the set of dummy variables accounting for

the presence of at least one board member with a given current occupation, we find that only CFO experience is statistically significant (with a negative coefficient), though the power of that estimation is lower because of the large number of additional variables added to the estimation.

The negative and significant coefficient on major shareholder is consistent with prior evidence of the positive effect of block holders on boards over monitoring (Klein [2002]). The non-linear effect of CEO experience can be interpreted as follows: board members with previous CEO experience reduce the level of discretionary accruals. However, the marginal contribution of more board members with CEO experience to monitoring is not significant. The negative association between previous CFO experience and the absolute value of discretionary accruals ( $-0.038$ ,  $t\text{-stat } 2.70$ ) is consistent with the assumption that earnings management is less likely when the monitoring is performed by directors with higher levels of financial expertise (MacDaniel et al. 2002, DeFond et al. 2005, Krishnan et al. 2008, Dhaliwal et al. 2010). Overall, we interpret these results as evidence that the economic effect of the Quota must not be interpreted in terms of gender, but must be evaluated in the context of the characteristics of board members.

## *5.2 Co – opted boards*

Hermalin and Weisbach [1998] and Coles et al. [2014] provide evidence that when CEOs are more entrenched they appoint new directors that are acquiescent. Coles et al. [2014] define board co-option as the percentage of board members elected during the current CEO's tenure. As boards become more co-opted, the level of monitoring over the CEO activities diminishes. In this sense, the massive appointment of board members given the Norwegian Gender Quota provides an adequate setting for testing the hypothesis of

increasing earnings management as boards' co-option (the presence of 'captured' directors) increases. We use the two measures of co-option proposed by Coles et al. [2014]—proportion of co-opted board members and proportion of director-years served by directors appointed by the current CEO—to study the relation between discretionary accruals and boards' co-option. In unreported results, we do not find a statistically significant relationship between both co-option measures and discretionary accruals. Thus, our results of increased earnings management because of the passage of the quota do not seem to be attributable to changes in board co-option.

## **6. Conclusions**

We study whether the Norwegian law requiring a minimum of a 40% of women on the boards of public firms had effects on the monitoring capabilities of boards of directors. In particular, we analyze whether the quality of accounting numbers was affected. Using a hand-collected database of board members' personal and professional attributes, we test the assumption that after the Gender Quota new boards are younger, have different backgrounds and have lower executive experience. We hypothesize that these younger, less experienced boards, are less prepared to fulfill one of the main roles of board of directors: monitoring. We argue that the boards monitoring capability of the firms most affected by the quota is reduced, compared to boards whose members were chosen freely by shareholders, before the passage of the quota. To test this decrease in monitoring capability, we look at an output of monitoring: the quality of accounting numbers. As a proxy for the quality of accounting numbers we use the unsigned discretionary accruals from the Francis and Wang [2008] model. Our results suggest that, after the passage of the

Gender Quota, earnings management is more pronounced in firms for which the impact of the passage of the quota was larger. To identify the firms for which implementing the quota was most costly we focus on firms without women in 2002 (the year before the quota was announced) and on firms who needed to hire more women to comply with the requirements of the quota.

We also find evidence of associations between board characteristics and the current occupation of board members and earnings management. In particular, the presence of major shareholders and board members with executive experience is negatively related to abnormal accruals. Also, our results provide evidence of a negative and significant relation between boards with at least one board member working currently as a CFO and our proxy for earnings management.

Overall, our results suggest that forced changes in corporate governance weaken internal control mechanisms, as monitoring. This effect could be one of the forces leading to the reduction of firm value driven by the introduction of the quota documented by Ahern and Dittmar [2012], and to the decision to change to a legal status not affected by the quota documented by Bøhren and Staubo [2014]. Though we find evidence that gender quotas have negative effects in terms of accounting quality, these effects are limited to a short time period after the quota implementation. This study leaves an open window for further research on the long run effects of the Gender Quota on accounting quality. As proponents of gender quotas claim, once there is a critical mass of women on top positions more women can find their way to executive positions and acquire the desired skills to become efficient monitors. Overall, considering the current debate regarding whether gender quotas should be imposed, our evidence is especially relevant to widen our understanding of the consequences of such regulations in the short run.



## Appendix A

For each board member in our sample we collect the following personal/demographic characteristics, as well as her/his current occupation(s). The collected items are the same as in Ahern and Dittmar [2012], with the exception of Major Shareholder and Norwegian Graduate.

For personal/demographic characteristics we collect the following data:

- Age.
- Gender.
- Tenure.
- Insider: the board member receives a monetary compensation other than boards' salary from the firm.
- Family: the board member shares the same family name as the CEO or other current board member.
- Major Shareholder: the board member owns 5 percent or more of the companies' shares, directly or indirectly.
- CEO experience: prior or actual experience as Chief Executive Officer or owner.
- MBA: the board member has a Master in Business Administration.
- Norwegian Graduate: the board member has Graduate level education from a Norwegian institution.
- High Education: the board member has Graduate level education from an institution outside Norway or a PhD.

Definition for current occupation(s) is as follows:

- Vice-president: vice-presidency of any kind.
- Consultant: consultant, advisor, counselor.
- Board member: chair, deputy chair, member.
- Professor: university professor.
- CEO: Chief Executive Officer, general manager, president, managing director, administrative director.
- Attorney: attorney, lawyer, advocate, studies in law.
- Non-executive Officer: Manager, Head of (sales, Human Resources, etc.), Chief Operating Officer, marketing, general secretary.
- CFO: Chief Financial Officer, Investment Officer.
- Partner/principal: partner, principal, owner, self-employed, independent, founder, investor.
- Accountant: chartered accountant, payroll, controller, controlling.
- Other: any other occupation not described before.

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**Table 1** – Number of companies by amount of hired female-directors in the period 2002 – 2007 and board size in 2007

| Hired Women | Board size in 2007 |    |    |   |   |   |
|-------------|--------------------|----|----|---|---|---|
|             | 3                  | 4  | 5  | 6 | 7 | 8 |
| 0           | 1                  | 0  | 2  | 2 | 1 | 0 |
| 1           | 0                  | 0  | 11 | 0 | 2 | 0 |
| 2           | //                 | 8  | 33 | 3 | 3 | 1 |
| 3           | //                 | // | // | 8 | 6 | 0 |

Notes to Table 1: board size in 2007 is the number of shareholder elected board members as reported by the Norwegian Business Register at the end of the year 2007. *Hired women* is the difference between the number of female board members in 2007 compared to 2002.

**Table 2** – Difference in firms characteristics in the year 2002.  
Identification strategy one.

|                    | Control | Treatment | Difference | Standard Error |
|--------------------|---------|-----------|------------|----------------|
| Log of assets      | 13.293  | 11.248    | 2.045***   | 0.397          |
| Log of employees   | 7.557   | 5.585     | 1.973***   | 0.418          |
| Leverage           | 0.629   | 0.565     | 0.063      | 0.053          |
| Cash over Assets   | 0.143   | 0.205     | -0.062     | 0.046          |
| Assets Turnover    | 1.024   | 1.083     | -0.059     | 0.182          |
| Return over Assets | -0.014  | -0.064    | 0.050      | 0.067          |
| Observations       | 26      | 55        |            |                |

Notes to Table 2: control group is the set of firms with at least a female board member in 2002. Treatment is the rest of the sample. *Leverage* is the ratio of Total Assets over Total Liabilities; *Cash over Assets* is cash and other short term investments over total assets; *Assets Turnover* is sales over total assets. *Return over Assets* is EBIT over total assets. \*\*\* Significance at the 1 percent level.

**Table 3** – Difference in firms characteristics in the year 2002.  
Identification strategy two.

|                    | Control | Treatment | Difference | Standard Error |
|--------------------|---------|-----------|------------|----------------|
| Log of Assets      | 13.206  | 11.506    | 1.700***   | 0.468          |
| Log of employees   | 7.307   | 5.872     | 1.434***   | 0.498          |
| Leverage           | 0.589   | 0.585     | 0.004      | 0.059          |
| Cash over Assets   | 0.173   | 0.189     | -0.016     | 0.052          |
| Assets Turnover    | 0.969   | 1.094     | -0.125     | 0.200          |
| Return over Assets | -0.038  | -0.050    | 0.012      | 0.074          |
| Observations       | 19      | 62        |            |                |

Notes to Table 3: control group is the set of firms fulfilling the quota in 2002 or firms having to hire only a single female board member to fulfill it. Treatment is the rest of the sample. *Leverage* is the ratio of Total Assets over Total Liabilities; *Cash over Assets* is cash and other short term investments over total assets; *Assets Turnover* is sales over total assets. *Return over Assets* is EBIT over total assets. \*\*\* Significance at the 1 percent level.

**Table 4** – Average Board of Directors' characteristics by year.

| Panel A. Board characteristics |       |       |       |       |       |       |       |       |       |       |
|--------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                                | 2001  | 2002  | 2003  | 2004  | 2005  | 2006  | 2007  | 2008  | 2009  | 2010  |
| Number of Members              | 5.37  | 5.32  | 5.16  | 5.22  | 5.27  | 5.42  | 5.37  | 5.46  | 5.26  | 5.45  |
| Retained (%)                   |       | 78.46 | 78.24 | 83.87 | 81.74 | 80.99 | 73.24 | 80.49 | 82.31 | 81.04 |
| Female (%)                     | 6.71  | 7.69  | 11.43 | 15.18 | 23.23 | 30.51 | 40.94 | 42.06 | 42.12 | 43.43 |
| Age                            | 51.89 | 51.97 | 52.55 | 52.76 | 52.10 | 52.07 | 51.73 | 52.26 | 52.59 | 52.77 |
| Norwegian (%)                  | 89.56 | 89.86 | 86.23 | 85.41 | 85.41 | 84.87 | 85.28 | 84.93 | 83.73 | 81.14 |
| Tenure                         | 3.62  | 3.81  | 3.78  | 3.99  | 4.13  | 4.27  | 3.92  | 4.04  | 4.49  | 4.37  |
| Insider (%)                    | 9.30  | 7.08  | 4.86  | 5.11  | 5.19  | 5.50  | 3.70  | 3.77  | 3.41  | 4.23  |
| Family (%)                     | 4.61  | 4.46  | 3.38  | 3.32  | 3.04  | 2.90  | 2.96  | 3.11  | 3.29  | 4.24  |
| Major Shareholder (%)          | 28.81 | 31.15 | 28.57 | 29.42 | 26.08 | 24.87 | 23.74 | 24.07 | 26.80 | 27.48 |
| CEO experience (%)             | 70.01 | 72.90 | 74.55 | 72.44 | 68.30 | 65.34 | 62.36 | 63.74 | 65.47 | 64.22 |
| MBA education (%)              | 24.60 | 25.70 | 24.72 | 24.80 | 25.45 | 25.70 | 25.77 | 26.25 | 24.83 | 26.50 |
| Norwegian Grad (%)             | 20.02 | 19.62 | 18.02 | 19.15 | 19.80 | 23.26 | 24.61 | 23.11 | 23.33 | 23.38 |
| Other Grad (%)                 | 16.48 | 15.89 | 15.61 | 16.73 | 19.87 | 19.47 | 16.64 | 16.82 | 18.87 | 20.42 |

Notes to Table 4 Panel A: this table presents average Board Characteristics for firms in our sample, where available. *Retained* is the percentage of board members present in year t-1 and year t; *Female* is the percentage of female board members; *Norwegian* is the percentage of board members with Norwegian citizenship; *Tenure* is the average tenure of board members; *Insider* is the percentage of board members who are firm's employees; *Family* is the percentage of board members sharing any family relationship with respect of other board members or the executive team; *Major Shareholder* is the proportion of board members owning directly or indirectly more than 5 percent of the firm's shares; *CEO experience* is the percentage of board members with executive experience; *MBA education* is the percentage of board members with executive education; *Norwegian Grad* is the percentage of board members with graduate level education from a Norwegian institution; *Other Grad* is the percentage of board members with graduate level education from a non-Norwegian institution. Data of *Tenure* is computed using information from the Annual Reports or from the Norwegian Business Register, where available.

**Table 4 – (Continued)**

| Panel B. Outside occupation of shareholder elected directors (%) |       |       |       |       |       |       |       |       |       |       |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|  | 2001  | 2002  | 2003  | 2004  | 2005  | 2006  | 2007  | 2008  | 2009  | 2010  |
| Vice President   | 5.21  | 4.99  | 4.29  | 4.06  | 4.29  | 5.48  | 5.26  | 5.33  | 6.26  | 4.67  |
| Consultant   | 10.84 | 14.26 | 18.29 | 16.45 | 15.00 | 13.75 | 14.99 | 12.95 | 13.12 | 12.57 |
| Board Member   | 75.61 | 79.64 | 81.16 | 80.23 | 79.66 | 80.89 | 78.64 | 79.22 | 80.30 | 79.28 |
| Professor  | 2.88  | 1.93  | 1.29  | 1.63  | 2.12  | 2.06  | 1.96  | 2.29  | 1.68  | 1.56  |
| CEO  | 28.71 | 27.85 | 28.98 | 29.58 | 29.37 | 28.56 | 26.43 | 27.35 | 27.74 | 27.33 |
| Attorney   | 9.24  | 8.27  | 7.18  | 7.49  | 8.23  | 8.21  | 9.49  | 8.08  | 8.34  | 9.34  |
| Non-exe. Officer   | 5.93  | 4.11  | 3.83  | 5.03  | 6.19  | 7.62  | 8.41  | 7.50  | 6.75  | 9.41  |
| CFO  | 1.59  | 1.43  | 2.31  | 3.52  | 3.89  | 4.28  | 4.22  | 4.46  | 4.31  | 5.70  |
| Owner/partner  | 41.62 | 44.45 | 41.65 | 39.97 | 36.91 | 34.18 | 32.43 | 31.58 | 33.13 | 30.66 |
| Accountant   | 2.42  | 1.82  | 3.03  | 2.44  | 2.87  | 3.33  | 2.60  | 2.58  | 2.99  | 2.50  |
| Other  | 4.31  | 3.86  | 3.95  | 4.19  | 4.47  | 5.94  | 6.00  | 5.38  | 4.96  | 4.77  |
| Observations   | 72    | 80    | 80    | 80    | 80    | 80    | 80    | 80    | 73    | 69    |

Notes to Table 4 Panel B: this table presents average outside occupation of shareholders elected directors for firms in our sample, where available. We exclude from this analysis firms with missing data for any variable for more than a half of firm's board members. Occupations are defined as: *Vice-president*: vice-presidency of any kind; *Consultant*: consultant, advisor, counselor; *Board member*: chair, deputy chair, member; *Professor*: professor of any kind; *CEO*: Chief Executive Officer, general manager, president, managing director, administrative Director; *Attorney*: attorney, lawyer, advocate, studies in law; *Non-executive Officer*: Manager, Head of (sales, Human Resources, etc.), Chief Operating Officer, marketing, general secretary; *CFO*: Chief Financial Officer, Investment Officer; *Partner/principal*: partner, principal, owner, self-employed, independent, founder, investor; *Accountant*: chartered accountant, payroll, controller, controlling; *Other*: any other occupation not described before. Outside occupations are not mutually exclusive and so do not add 100 percent.



**Table 5** – Characteristics of New, Retained and Exiting board members, by Gender

|                       | New          |            | Retained     |            | Exiting      |            | Differences          |                      |                     |
|-----------------------|--------------|------------|--------------|------------|--------------|------------|----------------------|----------------------|---------------------|
|                       | Women<br>(1) | Men<br>(2) | Women<br>(3) | Men<br>(4) | Women<br>(5) | Men<br>(6) | (1)-(4)              | (1)-(6)              | (2)-(6)             |
| Panel A. Demographics |              |            |              |            |              |            |                      |                      |                     |
| Age                   | 46.15        | 50.40      | 48.73        | 55.17      | 47.71        | 53.15      | -9.03***<br>(0.441)  | -7.00***<br>(0.563)  | -2.75***<br>(0.585) |
| Tenure                | 0.00         | 0.00       | 2.92         | 5.86       | 2.08         | 3.99       | -5.86***<br>(0.135)  | -3.99***<br>(0.191)  | -3.99***<br>(0.191) |
| Norwegian (%)         | 80.00        | 79.15      | 84.23        | 86.89      | 83.77        | 84.08      | -6.89***<br>(2.385)  | -4.08<br>(2.738)     | -4.93**<br>(2.498)  |
| Insider (%)           | 1.29         | 4.45       | 3.04         | 5.61       | 1.97         | 6.62       | -4.32***<br>(0.808)  | -5.32***<br>(1.222)  | -2.17*<br>(1.141)   |
| Family (%)            | 2.25         | 1.17       | 3.41         | 3.64       | 1.94         | 2.09       | -1.39<br>(0.931)     | 0.16<br>(1.032)      | -0.92**<br>(0.791)  |
| Major Share. (%)      | 6.17         | 27.63      | 9.78         | 34.64      | 5.30         | 23.95      | -28.47***<br>(1.704) | -17.78***<br>(2.253) | 3.68<br>(2.808)     |
| CEO exp. (%)          | 37.70        | 79.04      | 42.27        | 78.27      | 31.54        | 74.63      | -40.57***<br>(2.915) | -36.93***<br>(3.349) | 4.40<br>(2.737)     |
| MBA (%)               | 22.15        | 26.97      | 26.27        | 25.60      | 22.38        | 24.01      | -3.45<br>(2.590)     | -1.86<br>(3.071)     | 2.96<br>(2.941)     |
| Norw. Grad (%)        | 30.54        | 20.10      | 28.67        | 17.12      | 33.57        | 18.89      | 13.42***<br>(2.795)  | 11.65***<br>(3.193)  | 1.21<br>(2.674)     |
| Other Grad (%)        | 21.48        | 19.85      | 19.60        | 17.73      | 17.48        | 19.44      | 3.74<br>(2.524)      | 2.03<br>(2.965)      | 0.41<br>(2.678)     |

Notes to Table 5: Differences on personal characteristics by shareholder elected Board Members' type for the 81 firms in our sample is estimated for the period 2002 – 2010, where available. *New* are Board Members entering the board in year *t*; *Exiting* are Board Members present in year *t-1* but not in year *t*; *Retained* are Board Members present both in year *t* and *t-1*. *Tenure* is the average tenure of board members; *Norwegian* is the percentage of board members with Norwegian citizenship; *Insider* is the percentage of board members who are firm's employees; *Family* is the percentage of board members sharing any family relationship with respect of other board members or the executive team; *Major Shareholder* is the proportion of board members owning directly or indirectly

more than 5 percent of the firm's shares; *CEO experience* is the percentage of board members with executive experience; *MBA education* is the percentage of board members with executive education; *Norwegian Grad* is the percentage of board members with graduate level education from a Norwegian institution; *Other Grad* is the percentage of board members with graduate level education from a non-Norwegian institution. *Data of Tenure* is computed using information from the Annual Reports or from the Norwegian Business Register, where available. Differences are obtained from a two sample t test with unequal variances. Standard errors reported in parenthesis. Significance at the 10%, 5% and 1% level is indicated by \*, \*\*, and \*\*\*, respectively.

**Table 5 – Continued**

|   | New          |            | Retained     |            | Exiting      |            | Differences          |                      |                     |
|---|--------------|------------|--------------|------------|--------------|------------|----------------------|----------------------|---------------------|
|   | Women<br>(1) | Men<br>(2) | Women<br>(3) | Men<br>(4) | Women<br>(5) | Men<br>(6) | (1)-(4)              | (1)-(6)              | (2)-(6)             |
| Panel B. Primary outside occupation (%) |              |            |              |            |              |            |                      |                      |                     |
| Vice President                          | 7.54         | 4.81       | 7.27         | 3.77       | 11.41        | 5.66       | 3.77**<br>(1.568)    | 1.88<br>(1.808)      | -0.85<br>(1.442)    |
| Consultant                              | 16.72        | 17.55      | 12.81        | 14.48      | 18.12        | 15.69      | 2.24<br>(2.268)      | 1.03<br>(2.646)      | 1.85<br>(2.430)     |
| Board Member                            | 68.85        | 80.29      | 71.33        | 84.61      | 63.76        | 78.28      | -15.76***<br>(2.765) | -9.43***<br>(3.187)  | 2.01<br>(2.631)     |
| Professor                               | 3.61         | 0.00       | 4.36         | 1.18       | 4.70         | 1.46       | 2.43**<br>(1.094)    | 2.15*<br>(1.186)     | -1.46***<br>(0.513) |
| CEO                                     | 21.97        | 32.45      | 27.34        | 29.01      | 20.13        | 28.10      | -7.04***<br>(2.564)  | -6.13**<br>(3.055)   | 4.35<br>(2.996)     |
| Attorney                                | 10.49        | 6.97       | 13.08        | 6.81       | 10.74        | 7.48       | 3.68**<br>(1.838)    | 3.01<br>(2.086)      | -0.51<br>(1.682)    |
| Non-exe. Officer                        | 18.69        | 2.40       | 12.68        | 3.09       | 16.78        | 4.38       | 15.60***<br>(2.273)  | 14.31***<br>(2.401)  | -1.98<br>(1.154)    |
| CFO                                     | 5.57         | 5.29       | 4.89         | 3.00       | 3.36         | 2.55       | 2.58*<br>(1.365)     | 3.02**<br>(1.479)    | 2.73**<br>(1.289)   |
| Owner/partner                           | 13.11        | 37.26      | 19.02        | 44.30      | 16.11        | 41.42      | -31.19***<br>(2.206) | -28.31***<br>(2.861) | -4.16<br>(3.173)    |
| Accountant                              | 1.97         | 2.16       | 3.43         | 3.22       | 2.01         | 1.64       | -1.26<br>(0.881)     | 0.32<br>(0.964)      | 0.52<br>(0.897)     |
| Other                                   | 7.54         | 3.61       | 7.79         | 4.04       | 9.40         | 4.01       | 3.50**<br>(1.571)    | 3.53**<br>(1.731)    | -0.41<br>(1.242)    |
| Observations                            | 316          | 432        | 768          | 2259       | 160          | 602        |                      |                      |                     |

Notes to Table 5: Differences on personal characteristics by shareholder elected Board Members' type for the 81 firms in our sample is estimated for the period 2002 – 2010, where available. *New* are Board Members entering the board in year *t*; *Exiting* are Board Members present in year *t-1* but not in year *t*; *Retained* are Board Members present both in year *t* and *t-1*. Occupations are defined as: *Vice-president*: vice-presidency of any kind; *Consultant*: consultant, advisor, counselor; *Board Member*: chair, deputy chair, member; *Professor*: professor of any kind; *CEO*: Chief Executive Officer, general manager, president,

managing director, administrative director; *Attorney*: attorney, lawyer, advocate, studies in law; *Non-executive Officer*: Manager, Head of (sales, Human Resources, etc.), Chief Operating Officer, marketing, general secretary; *CFO*: Chief Financial Officer, Investment Officer; *Partner/principal*: partner, principal, owner, self-employed, independent, founder, investor; *Accountant*: chartered accountant, payroll, controller, controlling; *Other*: any other occupation not described before. Differences are obtained from a two sample t test with unequal variances. Standard errors reported in parenthesis. Significance at the 10%, 5% and 1% level is indicated by \*, \*\*, and \*\*\*, respectively.

**Table 6** – Panel Regressions for Identification Strategy One.  
 Dependent variable: unsigned discretionary accruals estimated using the  
 Francis and Wang [2008] model.

|                           | (1)                 | (2)                | (3)                |
|---------------------------|---------------------|--------------------|--------------------|
| <i>Quota</i>              | 0.014<br>(0.93)     |                    | -0.014<br>(-0.84)  |
| <i>No_Fem1</i>            |                     | 0.043*<br>(1.96)   | 0.016<br>(0.72)    |
| <i>QuotaxNo_Fem1</i>      |                     |                    | 0.039**<br>(2.22)  |
| <i>Log of Sales</i>       | -0.009**<br>(-2.21) | -0.005<br>(-1.04)  | -0.005<br>(-1.23)  |
| <i>Growth</i>             | 0.016**<br>(2.64)   | 0.016***<br>(2.86) | 0.017***<br>(2.85) |
| <i>Leverage</i>           | 0.079*<br>(2.04)    | 0.063<br>(1.54)    | 0.062<br>(1.55)    |
| <i>Lag loss</i>           | 0.028**<br>(2.06)   | 0.026*<br>(1.94)   | 0.028**<br>(2.06)  |
| <i>Return over Assets</i> | -0.052<br>(-1.06)   | -0.055<br>(-1.15)  | -0.059<br>(-1.22)  |
| <i>Constant</i>           | 0.164***<br>(3.32)  | 0.095*<br>(1.85)   | 0.113**<br>(2.17)  |
| Industry Effects          | Yes                 | Yes                | Yes                |
| F – Statistics            | 6.04 (0.00)         | 5.03 (0.00)        | 5.15 (0.00)        |
| Adj R-sqr                 | 0.064               | 0.076              | 0.080              |
| Observations              | 692                 | 692                | 692                |

Notes to Table 6: *Quota* is a dummy variable taking value one for the period 2005–2010, zero otherwise; *No\_Fem1* is a dummy variable taking value one for firms with no female representation on their Boards in 2002. *Log of Sales* is the natural logarithm of sales; *Growth* is the yearly change in sales; *Leverage* is total liabilities over total assets; *Lag loss* is a dummy variable taking value one if the firm has recorded a loss in the previous year; *Return over Assets* is EBIT over total assets. t-statistics are presented beneath the coefficients within parentheses. Significance at the 10%, 5% and 1% level is indicated by \*, \*\*, and \*\*\*, respectively.

**Table 7** – Panel Regressions for Identification Strategy Two.  
 Dependent variable: unsigned discretionary accruals estimated using the  
 Francis and Wang [2008] model.

|                           | (1)                 | (2)                | (3)                |
|---------------------------|---------------------|--------------------|--------------------|
| <i>Quota</i>              | 0.014<br>(0.015)    |                    | -0.018<br>(-0.81)  |
| <i>No_Fem2</i>            |                     | 0.030*<br>(1.71)   | 0.003<br>(0.14)    |
| <i>QuotaxNo_Fem2</i>      |                     |                    | 0.040*<br>(2.04)   |
| <i>Log of Sales</i>       | -0.009**<br>(-2.21) | -0.006<br>(-1.55)  | -0.007*<br>(-1.75) |
| <i>Growth</i>             | 0.016**<br>(2.64)   | 0.016***<br>(2.79) | 0.017***<br>(2.79) |
| <i>Leverage</i>           | 0.079*<br>(2.04)    | 0.063<br>(1.46)    | 0.064<br>(1.50)    |
| <i>Lag loss</i>           | 0.028**<br>(2.06)   | 0.026*<br>(1.93)   | 0.027*<br>(2.04)   |
| <i>Return over Assets</i> | -0.052<br>(-1.06)   | -0.053<br>(-1.11)  | -0.056<br>(-1.16)  |
| <i>Constant</i>           | 0.164***<br>(3.32)  | 0.122***<br>(2.88) | 0.142***<br>(3.02) |
| Industry Effects          | Yes                 | Yes                | Yes                |
| F – Statistics            | 6.04 (0.00)         | 5.64 (0.00)        | 6.70 (0.00)        |
| Adj R-sqr                 | 0.064               | 0.068              | 0.072              |
| Observations              | 692                 | 692                | 692                |

Notes to Table 7: *Quota* is a dummy variable taking value one for the period 2005–2010, zero otherwise; *No\_Fem2* is a dummy variable taking value one for firms forced to hire two or more female board members to fulfill the Gender Quota at the end of 2007. *Log of Sales* is the natural logarithm of sales; *Growth* is the yearly change in sales; *Leverage* is total liabilities over total assets; *Lag loss* is a dummy variable taking value one if the firm has recorded a loss in the previous year; *Return over Assets* is EBIT over total assets. t-statistics are presented beneath the coefficients within parentheses. Significance at the 10%, 5% and 1% level is indicated by \*, \*\*, and \*\*\*, respectively.

**Table 8** – Panel Regressions for Identification Strategies One and Two.  
 Dependent variable: unsigned discretionary accruals estimated using the  
 Francis and Wang [2008] model.

|                           | Quota 2005 - 2009  |                    | Quota 2005 - 2008  |                    | Quota 2009 - 2010  |                    |
|---------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|                           | (1)                | (2)                | (3)                | (4)                | (5)                | (6)                |
| <i>Quota</i>              | -0.016<br>(-1.04)  | -0.017<br>(-0.86)  | -0.009<br>(-0.71)  | -0.011<br>(-0.65)  | -0.006<br>(-0.51)  | -0.008<br>(-0.52)  |
| <i>No_Fem1</i>            | 0.017<br>(0.88)    |                    | 0.025<br>(1.51)    |                    | 0.044<br>(1.69)    |                    |
| <i>No_Fem2</i>            |                    | 0.007<br>(0.33)    |                    | 0.014<br>(0.78)    |                    | 0.031<br>(1.47)    |
| <i>QuotaxNo_Fem</i>       | 0.043**<br>(2.30)  | 0.041**<br>(2.23)  | 0.037*<br>(1.72)   | 0.036*<br>(1.81)   | -0.002<br>(-0.07)  | 0.001<br>(0.04)    |
| <i>Log of Sales</i>       | -0.005<br>(-1.17)  | -0.007<br>(-1.69)  | -0.005<br>(-1.04)  | -0.006<br>(-1.55)  | -0.004<br>(-0.88)  | -0.006<br>(-1.41)  |
| <i>Growth</i>             | 0.016***<br>(2.92) | 0.016***<br>(2.85) | 0.016***<br>(2.96) | 0.016***<br>(2.90) | 0.016***<br>(2.90) | 0.016***<br>(2.82) |
| <i>Leverage</i>           | 0.061<br>(1.52)    | 0.062<br>(1.45)    | 0.058<br>(1.45)    | 0.059<br>(1.37)    | 0.060<br>(1.45)    | 0.060<br>(1.37)    |
| <i>Lag loss</i>           | 0.029**<br>(2.12)  | 0.028**<br>(2.13)  | 0.031**<br>(2.15)  | 0.030**<br>(2.17)  | 0.027*<br>(1.92)   | 0.027*<br>(1.90)   |
| <i>Return over Assets</i> | -0.060<br>(-1.22)  | -0.058<br>(-1.16)  | -0.060<br>(-1.20)  | -0.058<br>(-1.14)  | -0.057<br>(-1.18)  | -0.055<br>(-1.13)  |
| <i>Constant</i>           | 0.111**<br>(2.21)  | 0.139***<br>(3.09) | 0.102*<br>(1.98)   | 0.130***<br>(2.91) | 0.092<br>(1.64)    | 0.120**<br>( )     |
| Industry Effects          | Yes                | Yes                | Yes                | Yes                | Yes                | Yes                |
| F – Statistics            | 5.77 (0.00)        | 7.64 (0.00)        | 9.15 (0.00)        | 12.15              | 4.46 (0.00)        | 5.72 (0.00)        |
| Adj R-sqr                 | 0.082              | 0.073              | 0.081              | 0.073              | 0.074              | 0.066              |
| Observations              | 692                | 692                | 692                | 692                | 692                | 692                |

Notes to Table 8: *Quota* is a dummy variable taking value one for the time period specified over the columns' headlines, zero otherwise; *No\_Fem1* is a dummy variable taking value one if firm has not at least a female board member in 2002, zero otherwise; *No\_Fem2* is a dummy variable taking value one for firms forced to hire two or more female board members to fulfill the Gender Quota at the end of 2007. *Log of Sales* is the natural logarithm of sales; *Growth* is the yearly change in sales; *Leverage* is total liabilities over total assets; *Lag loss* is a dummy variable taking value one if the firm has recorded a loss in the previous year; *Return over Assets* is EBIT over total assets. t-statistics are presented beneath the coefficients within parentheses. Significance at the 10%, 5% and 1% level is indicated by \*, \*\*, and \*\*\*, respectively.

**Table 9** – Ahern and Dittmar [2012] methodology. Dependent variable: unsigned discretionary accruals estimated using the Francis and Wang [2008] model.

|                    | 2003 – 2009<br>Sample | 2003 – 2010<br>Sample |
|--------------------|-----------------------|-----------------------|
|                    | (1)                   | (2)                   |
| Percent women      | 0.164*                | 0.133                 |
|                    | (1.71)                | (1.57)                |
| Year fixed effects | Yes                   | Yes                   |
| Firm fixed effects | Yes                   | Yes                   |
| F - Statistics     | 3.17 (0.00)           | 2.97 (0.01)           |
| Observations       | 545                   | 614                   |

Notes to Table 9: Data are yearly observations from 2003—2009 in column (1) and 2003 – 2010 in column (2). Regressions are estimated using the proportion of female board members in 2002 as instrument for the independent variable *Percent women*. t-statistics are presented beneath the coefficients within parentheses. Significance at the 10%, 5% and 1% level is indicated by \*, \*\*, and \*\*\*, respectively.



**Table 10** – Panel Regressions for testing the effect of increasing board gender diversity on board characteristics. Dependent variable: board characteristics.

|                    | Board Size  | Age         | CEO exp.    | Major Shareholder | Insider     |
|--------------------|-------------|-------------|-------------|-------------------|-------------|
|                    | (1)         | (2)         | (3)         | (4)               | (5)         |
| Percent women      | 0.450       | -9.334**    | -0.404**    | -0.121            | -0.181**    |
|                    | (0.54)      | (-2.75)     | (-2.50)     | (-0.81)           | (-2.74)     |
| Year fixed effects | Yes         | Yes         | Yes         | Yes               | Yes         |
| Firm fixed effects | Yes         | Yes         | Yes         | Yes               | Yes         |
| F - Statistics     | 1.76 (0.10) | 2.35 (0.03) | 3.49 (0.00) | 1.20 (0.30)       | 1.85 (0.08) |
| Observations       | 614         | 614         | 608         | 608               | 608         |

Notes to Table 10: All variables are defined in Appendix A. Regression using the proportion of female board members in 2002 as instrument for the independent variable *Percent women*. *Board Size* is the number of shareholder elected board members; *Age* is the average age of board members; *CEO exp.* is the percentage of board members with executive experience; *Major Shareholder* is the percentage of board members owning 5 percent or more of the firm's shares, directly or indirectly; *Insider* is the percentage of board members who are firm's employees. t-statistics are presented beneath the coefficients within parentheses. Significance at the 10%, 5% and 1% level is indicated by \*, \*\*, and \*\*\*, respectively.

**Table 11** – Panel Regressions for Board Characteristics.  
 Dependent variable: unsigned discretionary accruals  
 estimated using Francis and Wang [2008] model.

|                                   | (1)                | (2)                |
|-----------------------------------|--------------------|--------------------|
| <i>Female</i>                     | -0.056<br>(-1.06)  | -0.075<br>(-1.39)  |
| <i>Board Size</i>                 | 0.009<br>(1.15)    | 0.015<br>(1.62)    |
| <i>Age</i>                        | -0.002<br>(-0.85)  | -0.002<br>(-1.28)  |
| <i>Major Shareholder</i>          | -0.050*<br>(-1.86) | -0.053*<br>(-1.84) |
| <i>CEO experience</i>             | -0.270*<br>(-1.71) |                    |
| <i>CEO experience<sup>2</sup></i> | 0.247*<br>(2.02)   |                    |
| <i>Vice – President</i>           |                    | -0.007<br>(-0.50)  |
| <i>Consultant</i>                 |                    | -0.027<br>(-1.68)  |
| <i>Professor</i>                  |                    | -0.030<br>(-1.04)  |
| <i>CEO</i>                        |                    | -0.013<br>(-0.71)  |
| <i>Attorney</i>                   |                    | -0.011<br>(-1.14)  |
| <i>Non-exe. Officer</i>           |                    | -0.008<br>(-0.70)  |
| <i>CFO</i>                        |                    | -0.038**<br>(2.70) |
| <i>Accountant</i>                 |                    | -0.024<br>(-1.60)  |

(cont. in the next page)

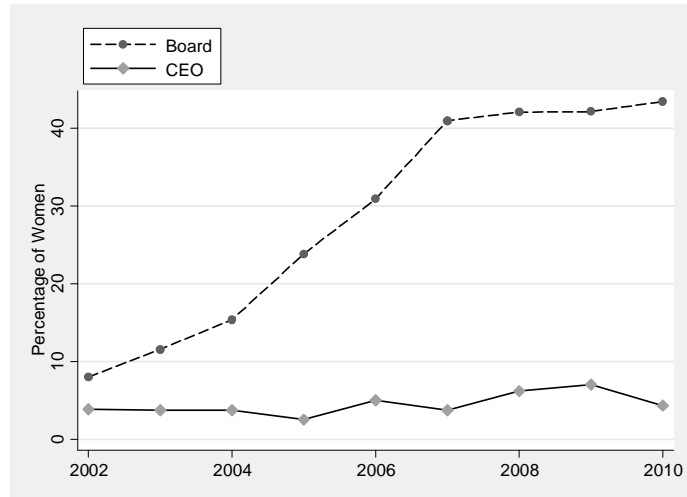
(cont. from the previous page)

|                           |                     |                    |
|---------------------------|---------------------|--------------------|
| <i>Log of Sales</i>       | -0.009**<br>(-2.40) | -0.007*<br>(-1.76) |
| <i>Growth</i>             | 0.014**<br>(2.71)   | 0.013**<br>(2.55)  |
| <i>Leverage</i>           | 0.076<br>(1.64)     | 0.078<br>(1.49)    |
| <i>Lag loss</i>           | 0.028**<br>(1.89)   | 0.032**<br>(2.11)  |
| <i>Return over Assets</i> | -0.066<br>(-1.30)   | -0.062<br>(-1.25)  |
| <i>Constant</i>           | 0.256**<br>(2.08)   | 0.205**<br>(0.093) |
| Industry Effects          | Yes                 | Yes                |
| Time effects              | Yes                 | Yes                |
| F – Statistics            | 18.72 (0.00)        | 4068 (0.00)        |
| Adj R-sqr                 | 0.096               | 0.100              |
| Observations              | 685                 | 685                |

Notes to Table 11: Variables in column (1) are defined as: *Female* is the percentage of female board members; *Board size* is the number of shareholder elected board members; *Age* is the age of the board members; *Major Shareholder* is the percentage of board members owning directly or indirectly 5 percent or more of the firm's shares; *CEO experience* is the proportion of board members with executive experience; *CEO experience<sup>2</sup>* is the square of the percentage of board members with executive experience. Variables in column (2) are defined as: *Vice-president*: vice-presidency of any kind; *Consultant*: consultant, advisor, counselor; *Professor*: professor of any kind; *CEO*: Chief Executive Officer, general manager, president, managing director, administrative director; *Attorney*: attorney, lawyer, advocate, studies in law; *Non-executive Officer*: Manager, Head of (sales, Human Resources, etc.), Chief Operating Officer, marketing, general secretary; *CFO*: Chief Financial Officer, Investment Officer; *Accountant*: chartered accountant, payroll, controller, controlling. The occupation variables are dummy variables equal to one if the Board includes at least one member with the current occupation. Board Member and Owner/partner current occupations are not included due to low variability. Controls for column (1) and column (2) are; *Log of Sales* is the natural logarithm of sales; *Growth* is the yearly change in sales; *Leverage* is total liabilities over total assets; *Lag loss* is a dummy variable taking value one if the firm has recorded a loss in the previous year; *Return over Assets* is EBIT over total assets. t-statistics are presented beneath the coefficients within parentheses. Significance at the 10%, 5% and 1% level is indicated by \*, \*\*, and \*\*\*, respectively.

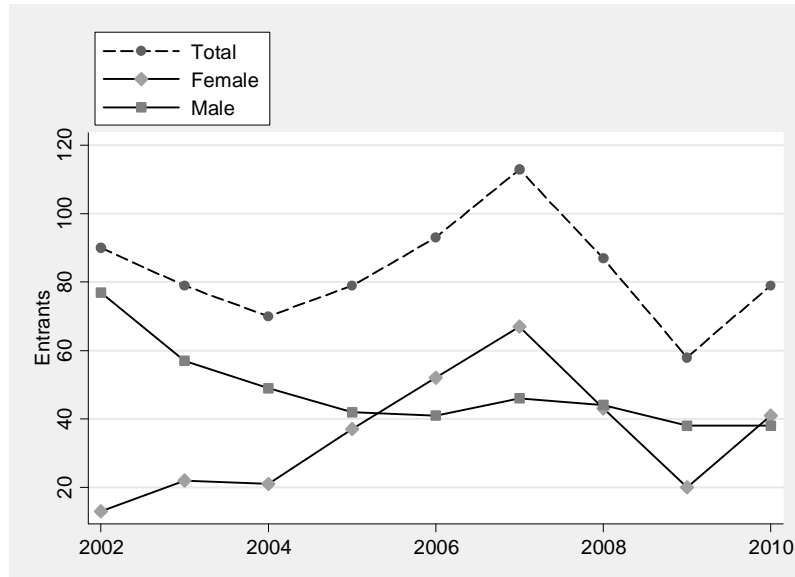
## Figures

**Figure 1 - Percentage of Women Directors and CEOs of Norwegian Public Limited Firms in our sample**



Data is from Norwegian Business Register for the 81 firms in our sample

**Figure 2 – Number of entrants. Total and by Gender.**



Data is from Norwegian Business Register for the 81 firms in our sample.