

# The Norwegian Gender Balance Law. A reform that failed?

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Boston — Delft

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## ABSTRACT

The Gender Balance Law (GBL) of June 14th 2003 and December 9th 2005 has consequences that are intended and unintended, foreseen and unforeseen.

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# 1

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## Introduction

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During the 2000s the Norwegian political authorities enacted the Gender Balance Law (GBL), requiring the public limited companies (PLCs) to have at least 40% of each gender on the board of directors. If the company did not comply, it would be dissolved. The legal process commenced in July 2003 and ended with the full implementation on January 1st, 2008. The law applies to listed and unlisted PLCs. The objectives for the law was first and foremost to achieve more gender equality in leadership positions in private companies. A prediction was that the compulsory gender representation would set in train the appointment of more women in top management positions, in particular more female CEOs. A second objective was to improve firm performance through increased gender diversity. The law was imposed upon PLC companies from outside, that is, for the companies concerned this was an exogenous event.

We look at the official rationales for the GBL. The central govern-

ment document presented to the Parliament as the law proposition is [Ot.prop. no 97 \[2003\]](#). From the proposition three main rationales for the GBL emerge. First, a low female representation on the boards is a sub-optimal resource utilisation. The proposition states emphatically several times that there is no lack of competent women to fill board seats, stating equality in education levels and business relevant experience. The claim that no lack of competent women exists constitutes a “basic presupposition” for the proposition. Second, the GBL would bring about greater gender equality and democracy by improving women’s participation in business and societal decisions. The reasons for low representation at the time was put down to “traditional ideological and cultural conditions”. The proposition avoids the word “discrimination”, but this is clearly the meaning of explanation. Third, the GBL would improve the firms’ profitability when board diversity increases. The proposition states that “increased board diversity, not only related to gender, but also age and background, can contribute to better strategic choices, more innovation, faster restructures, and through this to increased profitability” [[Ot.prop. no 97, 2003](#), p. 10, my translation]. To back up this claim, the proposition cites a student dissertation, but no international literature on the subject. The proposition further notes that the break-up of small networks and close ties among members will improve business decisions.

Thus, the proposition makes two promises, one for greater gender equality in leadership positions in private companies, and one for improved firm performance. We call these *GBL promise* 1 and 2. The promises are built on the “basic presupposition” that able women for directorships are easily found, as the companies have not accessed the full talent pool of candidates, but mainly the male part.

The concern for gender equality also in leadership positions in private

firms stands well within the Norwegian “state feminism” [Hernes, 1987] tradition, meaning that the government has a responsibility to improve gender equality at all levels in society. The policy may be seen as a continuation of the Scandinavian welfare state model [Sandmo, 1991], where the state takes an active part in redistribution of income to achieve narrow income differentials. The policy of gender equality follows this tradition and had at the time been implemented in the government sector. The time had now come to the private sector. Presumably, politicians viewed the law as appealing to a large part of the electorate. Instead of a development within a paternalistic welfare state, the reform may be seen as appealing to a special interest group, that is, women who aspire to leadership positions in private companies. Persson and Tabellini [2002, p. 160] define a policy favouring a special interest group as one that has “concentrated benefits and dispersed costs”. In the public choice literature this is called *rent seeking* [Mueller, 2003, chap. 15], that is, the appropriation of benefits to one group of society. In this case the costs are borne by especially younger aspiring men and potentially companies coming under the law. As we will argue, the benefits are harder to identify.

Thus, the GBL was exogenous to the companies that the law aim at. It arose at the political level and could not be overturned despite protests. The law infringes upon one of the basic rights that holding a company’s share confers upon the owner, namely the right to elect the company’s officers [Hansmann, 1996]. But board structure and corporate governance in general “arise endogenously because economic actors choose them in response to the governance issues they face” [Adams et al., 2010]. A company in the oil industry differs from a company in the IT services industry when it comes to the governance issues they need to cope with, a small company differs from a large one. Companies

find the combination of governance mechanism that suit their situation through a long trial-and-error process. To claim that a general reform is an improvement of the governance arrangement that the company has arrived at spontaneously requires that the reform eliminates or reduces one of three market failures of individual contracting [[Hermalin and Weisbach, 2006](#)], asymmetric information at the time of contracting, externalities on a third party, and the regulator's availability of punishing mechanisms that private contracting parties do not have, such as incarceration. Furthermore, the literature on regulation shows that regulations often have *unintended consequences*, consequences that the lawmakers did not foresee at the time. A general finding is that companies try to avoid regulations if they can, as witnessed for the Sarbanes-Oxley (SOX) legislation in the United States. [Gao et al. \[2009\]](#) find that small firms have an incentive to stay small in order to avoid the SOX regulations.

We write from the vantage point of financial economics, more specifically, from the corporate governance viewpoint. This means that the survey skips much valuable research contributions in other disciplines. The Gender Balance Law has attracted much scholarly interest. In this paper, we survey papers that deal with firm performance and the withering of the PLC company. Research on GBL touches on a series of aspects and includes [Seierstad and Opsahl \[2011\]](#) writing on changes in the network of companies and how female directors acquire "golden skirts", [Bøhren and Staubo \[2016\]](#) study how the GBL induced a more independent board, [Ahern and Dittmar \[2012\]](#), [Matsa and Miller \[2013\]](#), [Dale-Olsen et al. \[2013\]](#) study firm performance with different methodologies, while [Eckbo et al. \[2016\]](#) is a study that is critical just about every negative finding concerning the GBL. [Smith \[2014\]](#) gives an international overview of gender representation with an emphasis on effects of quotas.



In this survey article we take a closer look at the GBL reform. We concentrate on the two promises from the proposition for the law, that is the promise of greater gender equality on boards and the promise of better firm performance. The reform also had unintended consequences that the lawmakers did not foresee. The most important is what we call the withering of the PLC company. The number of PLC companies coming under the law was drastically reduced starting with the first signal that a compulsory law would come in 2002 and is, in fact, still ongoing. We look at easily accessed descriptive statistics and selected research that try to establish if the reform has been beneficial or not, concentrating on firm performance. We do not discuss the very large literature on the pros and cons of diversity in the board of directors. A good overview is [Ferreira \[2011\]](#). It turns out that the question if the reform has generated improved firm performance meets with a host of methodological problems [[Ferreira, 2015](#)]. Much of our discussion will be on methodological choices that various researchers do.

We conclude that the GBL is a failed reform. Promises are not fulfilled. On Promise 1 it turns out that the reform concerns few women. The reform has not been an impetus to increasing the fraction of female CEOs in larger companies. Promise 2 is that greater board diversity will improve firm performance. None of the studies we review here find that firm performance improves. They find either a negative or no effect of the reform. Furthermore, the reform has had some negative unintended consequences. First of all, the reform has brought about a drastic reduction in the number of PLC companies. The reduction implies less corporate transparency about the economic situation of the firm, its corporate governance and other aspects. Second, the reform has concentrated many board positions to a minority of female directors at the same time that the network connections have become thinner. Third,

[Bøhren and Staubo \[2016\]](#) show that board independence has increased to a level that brings about negative firm performance, and that these effects are concentrated among firms that need independence least. The conclusion of our review is that the Gender Balance Law should be repealed. Neighbouring Finland and Sweden have shown that they can attain a 30% female director fraction without any regulation.

# 2

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## Gender Balance Law and beyond

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### 2.0.1 The Gender Balance Law (GBL)

The Norwegian quota law for equal gender representation, article §6-11a in “The Norwegian Public Limited Liability Companies Act”, was finally made mandatory for all PLC companies from January 1st 2008. The law says that at least 40% of each gender must be represented at the board of directors. Specifically, the law mandated representation as set out in table 2.1.

This specification is relevant, since the typical size of a Norwegian board is five. Therefore, the overall average percentage may deviate from the 40% rule, even when companies follow the law to the letter.

The mandatory gender representation was made applicable to state owned and intermunicipal companies in 2004, to newly formed PLC companies in 2006, for established PLC companies in 2008, and for municipal and cooperative companies in 2009 [Teigen, 2012, p. 122-

**Table 2.1** Mandated gender representation in the board of directors. §6-11a in Company law for PLCs, made mandatory at January 1st 2008.

No. of directors	Minimum gender representation
2 or 3	1
4 or 5	2
6 to 8	3
9	4
10 +	40%

3]. Teigen mentions that the law applies to about 300 municipal and intermunicipal companies and about 300 cooperative companies. In this paper, we limit our discussion to PLC companies. A change in the law for LTD companies on November 1st 2007 made security trading legal for such companies. This was formerly reserved for PLC companies. The mandated quota came into force January 1st, 2006, with a two years grace period to achieve the 40% requirement. The GBL contain a dissolution clause, that is, if the company does not comply with the 40% requirement, it will be dissolved. The very strict sanction is probably instrumental in ensuring that companies abide by the law.

Since the law was mandated for PLC companies only, companies could avoid the consequences of the law by shifting registration from a PLC company and into a LTD organisational form. This adds a layer of methodological difficulties. For instance, studies that investigate consequences for PLC companies that exist after the implementation of the law are likely to have a biased sample, as only surviving companies are in the sample. We will see how researchers have tried to tackle these problems of *survivorship bias*.

The quota law was a result of a long drawn-out political process. [Teigen](#)

[2012] sees the law as an outgrowth of the “Norwegian state-feminist tradition” of furthering gender equality by government action, specifically gender quotas and positive action procedures. The tradition counts its heritage to the seventies [Hernes, 1987]. Political processes take time. Table 2.2 gives an overview of the political processes and decisions leading up to the final implementation of the GBL in the political domain.

The table 2.2 shows that the introduction of GBL was not a clean one-off break with the past, but rather the result of a long, drawn-out process unfolding in the political arena. The Gabrielsen announcement in February 2002 stands out as the turning point in the process. The announcement was a complete surprise, also to the minister’s colleagues in government, as was his recommendation to mandate a quota for female directors. Legislation starts in 2003, is then confirmed in 2005 along with a decision to implement the law from January 1st 2006. From then the companies had a two years’ grace period to comply with the law. Finally, the GBL is implemented in full from January 1st, 2008. Thus, from the inception of government involvement in 1999 until the final implementation in 2008 nine years pass.

Methodological problems appear when trying to uncover the effects that the lawmaking causes. First, the requirements for a natural experiment seem to be broken. The defining event date is hard to pin down. Is it 2003, 2006, or 2008? The answer is non-trivial for interpretation of the evidence. For instance, in 2003 companies knew that the law would be implemented, and could take actions to adapt to the new law. They could seek to fill board seats with able women, or they could consider transforming into the LTD organisational form. Second, a researcher cannot consider the events to be independent. Rather, political decisions are confirmation or refutation of the former decisions. These

methodological issues are at the forefront of the discussion in this text. Furthermore, evidence from other legislation will be brought forward. For instance, [Duchin et al. \[2010\]](#) discuss effects of the SOX legislation from mandating full independence in the auditing sub-committee.

## 2.1 International repercussions

The official document [Ot.prop. no 97 \[2003\]](#) notes with satisfaction that the proposal had received positive press comments throughout the world. Also, [Teigen \[2012\]](#) claims that the international diffusion of the quota rules as one of the great achievements of the work for gender equality.

[Terjesen et al. \[2015\]](#) take up the political argument in [Teigen \[2012\]](#) that the gender quota is a result of a political process, exogenous to the business community. They stress political institutions when explaining the uptake of legislation to end gender inequality in the boardroom, in particular, the strength of social democratic parties. [Grosvold \[2011\]](#) and [Adams and Kirchmaier \[2013\]](#) give further evidence of the implementation of gender quota laws in other countries. Apart from Norway and Iceland, it appears no other country threaten to dissolve the company if it does not comply. In most countries, the law is of a soft law type, requiring companies to comply, or to explain why the gender representation falls short of requirements.

## 2.2 GBL consequences: long-term trends

The lawmakers envisioned beneficial consequences from the GBL. Beneficial consequences could justify the GBL. The government's proposal

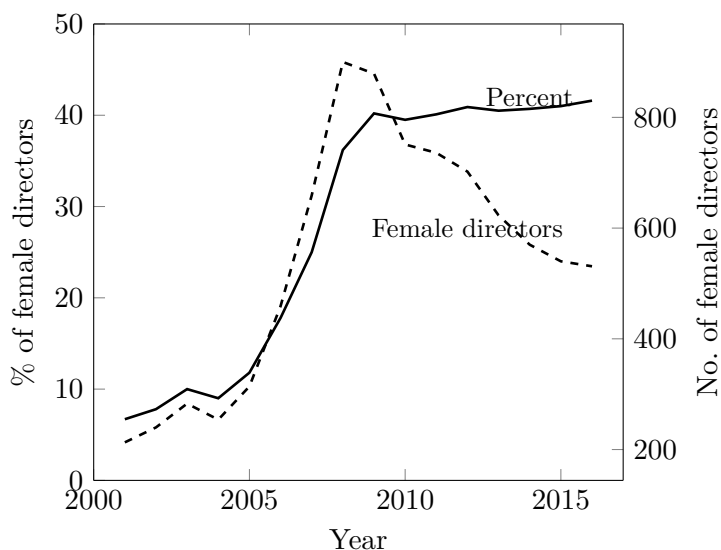
for the quota law states that “increased board diversity, not only related to gender, but also age and background, can contribute to better strategic choices, more innovation, faster restructures, and through this to increased profitability” [Ot.prop. no 97, 2003, p. 10] (my translation). In this chapter, we undertake to show some of the consequences that the law entailed from long-term descriptive data. The emphasis is on changes in corporate governance structures. But in addition to the *intended* consequences of the law, we will also look at the *unintended*. Specifically, we will look deeper into the Bøhren and Staubo [2014] study that finds an exodus of PLC registrations and into LTD status. Judged by its consequences, was the call for board equality justified?

### 2.3 The board and top management

There is no doubt that the gender balance law led to an increase in the *percentage* of women on the board in PLC companies. But the *number* of women in PLC companies declined shortly after the law’s implementation. The situation is depicted in figure 2.1.

The percentage and the absolute number curves follow each other closely until 2008. From 2008 the number of women declines while the percentage stays fixed at about 40 percent. At the nadir in 2008 900 individual women held a board position in a PLC company. A cynic might say that the GBL now concerns a small elite of about 500 women.

Figure 2.1 shows other interesting developments. First, the attainment of the 40 percent goal takes five years to fulfill. The increase in female representation starts in earnest in 2004, the year after the GBL enactment, and increases steadily until 2009, when the 40 percent target is



**Figure 2.1:** The percentage of female directors (left ordinate) and the number of female directors (right ordinate) in Norwegian PLC companies 2001 to 2016 (right scale)

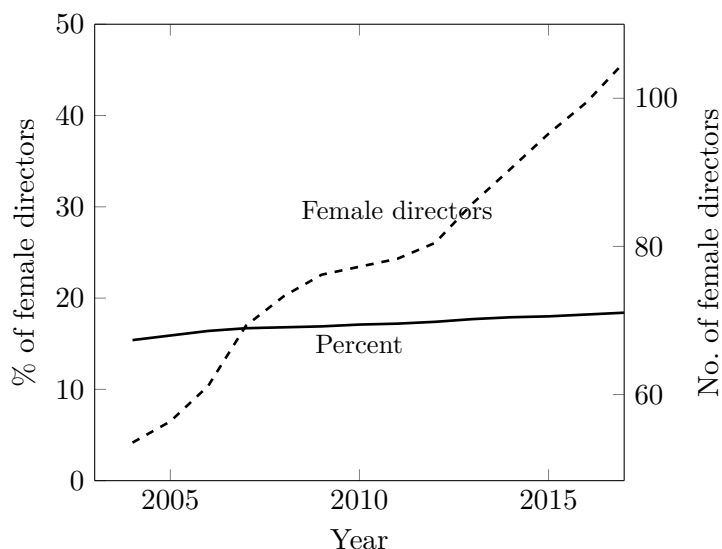
finally met. This means that the GBL does not constitute a decisive event, with clear periods before and after the event. Instead, the event is rather a five-year long drawn out process. Second, the GBL does not lead to full equality at around 50 percent of each gender represented. Once the 40 percent is attained, the percentage stays at this level. This is contrary to expectations from the proposition to the Parliament [Ot.prop. no 97, 2003].

Furthermore, implicit in the [Ot.prop. no 97, 2003] is an assumption of asymmetric information, in that owners need to be enlightened to the benefits of having a gender diverse board. When owners realise this, each gender should be equally represented, that is, 50% each. The asymmetric information can be one reason for regulating gender representation [Hermalin and Weisbach, 2006]. However, the long-term



development in the fraction of female directors suggests that this has not been the problem. Companies have attained the 40% required by the law and have stayed at 40%. This is rather evidence that companies find it hard to find able female candidates for the director posts. Moreover, the dwindling number of female directors in PLC companies means that the benefits of the GBL is concentrated among fewer and fewer women. The rent seeking benefits [Mueller, 2003] are becoming quite stark as time passes.

The falling number of women in PLC boards is in contrast to the rise of female directors and CEOs in private LTD firms. Figure 2.2 gives an overview of the percentage and of the number of female directorships and CEO positions held by men and women in LTD companies.



**Figure 2.2:** The percentage of female directors (left ordinate) and the number of female directors (right ordinate in 1,000) in Norwegian LTD companies 2004 to 2017 (right scale)

Evidently, the *percentage* of female directors is much lower than in

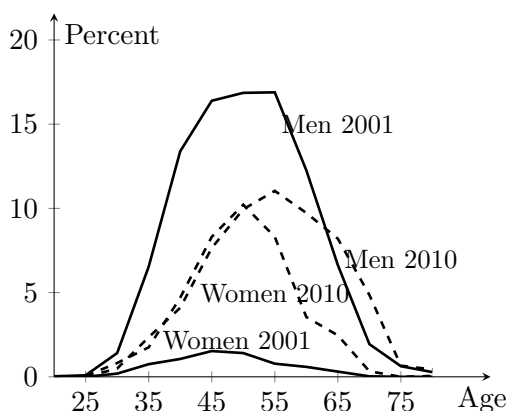
PLC companies. The percentage of female directors is increasing slowly and steadily from a level of 15.4% in 2004 and reaching 18.4% in 2017. However, the *number* of women on the board rises dramatically. In 2017 nearly 105,000 women held a director position in a LTD company, nearly twice the 53,500 female directors in 2004. This means that the growth in the number of female directors is stronger than for men. Thus, even without a quota law, the number of female directors increases. The progress is steady and even, and not in fits and leaps characterising the female directors in PLC companies in figure 2.1. The progress seems to mirror the steady increase in female full-time labour participation in figure 3.2 and women's choice of sector affiliation in figure 3.3.

The steady increase in the percentage and the number of female directors is against expectations in the [Ot.prop. no 97 \[2003\]](#). The expectation was that the law would inspire the LTD companies to appoint more female directors. The fact that we do not observe a jump in representation, but rather a steady progress, is a witness that these reflect deeper changes in society. The rise in female representation seems to be independent of the GBL.

## 2.4 Board demographics changes

The average board size did not change much as a consequence of the GBL. The average board size increases slowly and steadily from 5.1 in 2001 to 5.7 in 2016. This is perhaps surprising, as one might expect that companies adjusted to the GBL by expanding the number of directors. When this did not happen, the implication is that the GBL led to a substitution of male directors for female.

Ahern and Dittmar [2012] and others note that the age distribution changes with the GBL. This is, in fact, a likely result given the high rate of substitution in the boards following the GBL. The age distribution changes, as figure 2.3 witnesses. The figure shows the age distribution of men and women in 2001, before the GBL, and 2010, after the GBL implementation.



**Figure 2.3:** Age and gender distribution in Norwegian boards in 2001 and 2010. Percent of all board directors in each year. Source: Brønnøysund Register

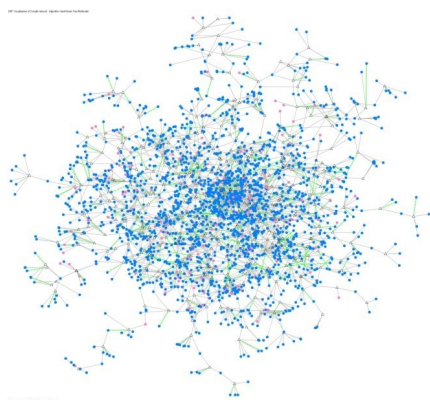
The figure shows that the age distribution changes most notably for men. The distribution changes to the right, indicating that male directors are older on average in 2010 than in 2001. Female directors are distinctly younger in 2010 than men are in the same year. But if we compare women's age in 2010 with men's age in 2001, the difference vanishes. The new women in 2010 have the same age distribution as men before the GBL. It seems as if owners prefer to keep the experienced male directors, perhaps in order to provide a balance to the low experience of the younger women. Young women replace young men. An upshot of this analysis is that a cohort of young men aspiring for the board room have to wait for the old men to step down.

## 2.5 Network: “The golden skirts”

The minister of Industry Ansgar Gabrielsen said in the VG newspaper interview (22.02.2002) that he was “sick and tired” of the way the “old boys’ network” appointed men to each others’ boards, before introducing the GBL. Changes in board composition in PLC companies are unmistakable. One change is the emergence of the *golden skirts* [Seierstad and Opsahl, 2011]. The golden skirts are women who obtained a board position as a consequence of the GBL, especially those women who could hold several directorships. Arnesen-Nyhus and Strøm [2016] confirm the golden skirts suggestion. Using data from the Brønnøysund register from 2001 to 2010, we divide the number of directorships by the number of unique persons and find that men hold 1.31 directorships on average in 2001 and 1.15 in 2010. Women start with 1.12 directorships on average and ends the period with 1.26. Thus, the GBL seems to have broken the “old boys’ network” and substituted it for influential women.

Arnesen-Nyhus and Strøm [2016] perform a network analysis of Norwegian boards of all PLC companies in the period 2001 to 2010. We look at the connections created when a director sits on multiple PLC boards. A rationale for studying network among companies and individual directors comes from Bøhren and Strøm [2010], who find that profitability improves for a better connected company. Arnesen-Nyhus and Strøm first give a graphical picture of network connections between individuals in PLC companies, see figures 2.4 and 2.5.

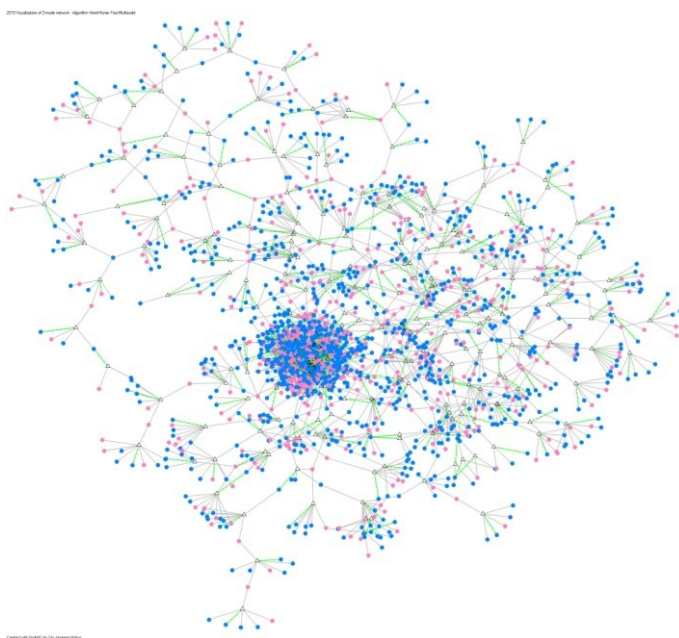
The figures contain only the companies with relations to the so-called “main component” [Wasserman and Faust, 1994] of all companies, that is, companies whose directors do not hold any other PLC directorships



**Figure 2.4:** The network of joint directorships in Norway in 2001. Source: Arnesen-Nyhus and Strøm (2016)

are kept outside the analysis. The two network maps shows that more companies participate in 2001 than in 2010. This is as expected, since the number of PLC companies withered away in the period, see next section 4. But the network is also more concentrated, with a core of companies with dense connections and large part of the network made up of companies with few relations to other companies. With a less dense network the information flow between companies is reduced. The directors access to business ideas, and not the least, knowledge about good candidates for board or management positions becomes poorer. This can impair the board's work.

Figures 2.4 and 2.5 have blue and pink colours representing male and female directors, respectively. We are able to characterise the relative importance of male and female directors in the overall network. Loosely speaking, this importance comes from the number of directorships a



**Figure 2.5:** The network of joint directorships in Norway in 2010. Source: Arnesen-Nyhus and Strøm (2016)

director holds, as well as the linkages that other directors bring from other companies. The importance is measured by various *centrality measures* [Freeman, 1979]. Here, we use only the *betweenness centrality* for illustration. A person occupying the position of a “bridge” between two sub-networks will have a high betweenness centrality.

Table 2.3 gives an overview of summary statistics for betweenness over the 2001-2010 period. The table contains a simple  $t$  statistic of the differences in averages in the two sub-groups for every year.

Initially, we notice that male dominance in the main component has become substantially weaker during the period. From 2007 the fraction of female directorships in the main component is on par with the overall

fraction of female directors. At the same time great changes takes place for centrality for women, in particular betweenness centrality. In 2001 the betweenness centrality for men is about twice the female centrality, and the difference is significant. This is reversed in 2006 when the female betweenness centrality is significantly larger than the male, and this persists for the period. During the decade women have largely assumed central positions in the network of persons. More than men, they are information intermediaries between persons. The pattern for betweenness centrality repeats for other centrality measures such as closeness and eigenvector centrality, even though the results are not as definite. Thus, the overall conclusion is that women have become more central than men in the network of individual actors.

Thus, the GBL has definitely broken the “old boys’ network” and replaced it with the “old girls’ network”.

## 2.6 Too much monitoring?

[Bøhren and Staubo \[2016\]](#) advance the idea that the GBL could have induced the dispensation of too much monitoring and too little advice in the board-CEO relationship. We close this chapter with a look at their arguments.

Their background is that the functioning of boards does not adhere to a “one size does not fit all” model [[Coles et al., 2008](#)]. Companies have different governance needs, the needs are different in small companies and in large, in a newly created company and a long established. Two important functions of the board is to monitor the CEO’s actions and to give the CEO advice [[Adams and Ferreira, 2007](#)]. Adams and Ferreira show in a theoretical model that the CEO is less willing to share

information with the board if the board stresses monitoring, leading to sub-optimal board and CEO decisions. [Duchin et al. \[2010\]](#) investigate the value of having a board composed of mainly independent directors who are able to monitor, versus a board that is able to advice the CEO. The authors use the SOX legislation to study effects, and find that a high level of independence is advantageous for a settled, established company, while a lower level suits companies where costs of information collection are high. SOX imposed a high level of independence, especially in the audit committee that is the object of study for [Duchin et al. \[2010\]](#).

[Bøhren and Staubo \[2016\]](#) explore the question for the Norwegian GBL regulation. Their definition of board independence is the number of outside directors divided by the number of directors elected by shareholders. The outside director is an indicator variable being 1 if “...the board member is neither a full-time employee in the firm, a former employee, an employee of a closely related firm, related to a member of management, nor has business relationships with the firm”. All PLC companies constitute their sample. The listed PLC companies are subject to the Norwegian Corporate Governance Code (NUES) from 2004 requiring at least 50% of board members to be independent. The unlisted PLC companies have no such obligation. To explain the level of board independence ( $BI$ ) they run the regression

$$BI_{it} = \alpha + \beta_1 FD_{it} + \beta_2 L_{it} + \beta_3 FD_{it} \times L_{it} + \gamma \mathbf{X}_{it} + u_{it} \quad (2.1)$$

where  $FD_{it}$  is the fraction of female directors,  $L_{it}$  is a binary variable being 1 if the firm is listed, and  $\mathbf{X}_{it}$  is a vector of control variables.

Bøhren and Staubo find that board independence has increased in



the time span they investigate, 2003 to 2008 for all companies, and especially for the listed companies. The independence is significantly higher in 2008 than 2003 for both listed and unlisted companies. In regressions with board independence as the dependent variable, the fraction of female directors is strongly associated with independence. The implication is that the GBL reform brought about higher board independence, and not NUES. Owners were unable to appoint women to the board without also appointing independent directors. A more independent board is therefore, a side-effect to the GBL. The GBL has, in other words, distorted market solutions.

Bøhren and Staubo also perform analyses of firm performance using the residual  $\hat{u}_{it}$  from the board independence regression (2.1) as the main explanatory variable. They find that companies that are exposed to the GBL have weaker performance the more the board's actual independence deviates from its predicted independence. Thus, the companies that are farthest away from the 40% rule at the outset turn out to have the weakest performance relative to the expected. If board structure is optimally set before GBL, the reform has had negative value consequences for many companies.

## 2.7 More female leaders?

A central objective for the GBL was to inspire companies to hire more women into higher managerial positions, in particular the CEO position. In this section, the development in

The point is further reinforced when looking at the distribution of CEO positions. The number of female CEOs in LTD companies exhibits the same slow and steady increase as for directors. In 2004 13.0% of CEOs

are female, in 2017 the number is 16.2%. The numbers are 16,279 in 2004 and 36,674 in 2017, a growth of 125%. This is in contrast to the development in PLC companies. Here, about 5.0% have a female CEO in 2001, then falling before achieving the highest point of 7.8% in 2012. In 2017 the percentage is down to 7.0. The numbers are minuscule, only 24 in 2012 and 15 in 2017. [CORE – Center for Research on Gender Equality \[2017\]](#) in Oslo, Norway has published statistics on the top positions in the 200 largest companies (excluding public companies exempted from competition). They report that in 2017 a women is the CEO in 7.5% of the companies, the chair in 11.5%, and that women hold 39% of board positions in PLC companies and 19% in LTD companies. Furthermore, they trace the gender balance in line, staff, and support leadership functions at lower levels of the organisation. Line functions have decision responsibilities in the organisation, and often has budget responsibility. It turns out that in Health care women hold 37% of line positions, but only 6% in Information technology companies.

[Bertrand et al. \[2018\]](#) undertake a thorough investigation into the promise that GBL would lead to greater overall equality in leadership positions. Their overall conclusion is that the reform had no discernible effects beyond the boardroom. They note at the outset that quotas to achieve greater equality can have substantial effects if women have been discriminated against, and that this discrimination leads to path dependence in leadership appointments. I return to the discrimination question in the next chapter, section [3.1](#). Now, let us look more closely at the Bertrand et al. study.

Bertrand et al. study effects of the GBL for the effects at the board level, effects on gender gaps in PLCs, the labour market outcomes for women that are not directors, and finally, the effects upon the the earnings and career prospects of young people.

The expected jump in other leadership positions following the GBL envisioned in [Ot.prop. no 97 \[2003\]](#) has not materialised. May be one explanation is that female candidates for CEO positions find that a combination of board positions and free consulting is more rewarding. Moreover, with few women at lower levels in line positions the recruitment to overall leadership responsibility is falling short of expectations.

**Table 2.2** Important dates in the history of the Gender Balance law

Date	Event
Oct 1999	“Consultation document on changes to the gender equality act”, Ministry of Children and Family 1999. The document proposes 25% minimum quota in privately owned companies.
Jul 2 2001	Consultation document from the Jens Stoltenberg 1 government proposes more equal gender representation of at least 40% of each gender in state owned companies and in all PLC companies, but not in privately owned LTD companies.
Feb 22 2002	The minister of trade, Ansgar Gabrielsen, says in an interview for the newspaper VG that he “in the worst case will rewrite the company law to enforce at least 40% female directors in listed companies”
Jun 13 2003	The Ministry for Children and Family proposes the Gender Balance Law [Ot.prop. no 97, 2003] requiring at least 40% representation for each gender in PLC companies, if not companies on their own achieve the required representation within two years. The law’s sanction is to dissolve the company if it does not comply.
Jul 2005	The government assesses progress and decides to implement the law.
Dec 9 2005	The Norwegian Parliament enacts the GBL.
Jan 1 2006	The GBL is implemented with a two years’ grace period to achieve compliance. (Company Law §6-11a).
Jan 1 2008	Complete compliance is required.

**Table 2.3** Summary of betweenness distributed by male and female directors in Norwegian LTD companies 2001 to 2010. Source: [Arnesen-Nyhus and Strøm \[2016\]](#)

Year	<i>Men</i>			<i>Women</i>			<i>t</i> value
	Average	St.dev.	Obs.	Average	St.dev.	Obs.	
2001	0.076	0.153	2305	0.037	0.094	165	4.92
2002	0.067	0.143	1968	0.054	0.124	183	1.24
2003	0.060	0.128	1528	0.068	0.156	197	-0.68
2004	0.076	0.157	1408	0.065	0.154	246	1.10
2005	0.071	0.160	1291	0.061	0.150	338	1.07
2006	0.067	0.151	1190	0.102	0.195	452	-3.51
2007	0.040	0.104	973	0.080	0.175	592	-5.03
2008	0.044	0.105	794	0.124	0.231	542	-7.58
2009	0.036	0.099	675	0.091	0.179	451	-5.90
2010	0.051	0.133	686	0.099	0.185	474	-4.84

# 3

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## Was the Gender Balance Law necessary?

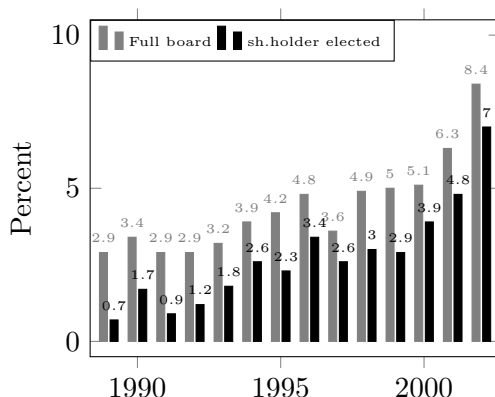
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The employers and their union protested against the GBL, stating that there is a shortage of competent women to fill the necessary number of board seats [Storvik and Teigen, 2010]. Also, a principled argument arose. Should the authorities break into the selection of trustees for the company by mandating a certain gender ratio? This should be the prerogative of the shareholders convened in the General Meeting.

We look at two main questions. The first is the claim in [Ot.prop. no 97 \[2003\]](#) that “traditional ideological and cultural conditions” held back women’s attainment of directorship positions before the GBL law was introduced. The second is another “basic presupposition” claim in the proposition that enough qualified women can be found to fill board seats. The claim went even further by saying that women constitute 50% of the potential talent pool for directorship positions.

### 3.1 Discrimination before GBL?

There is no doubt that women were underrepresented before the GBL. Figure 3.1 shows the average fraction of women on a Norwegian board from 1989 to 2002 when counting either the full board or the board with only shareholder elected directors. A Norwegian board has in many cases employee representatives.



**Figure 3.1:** Female director fraction in Norwegian non-financial listed firms 1989 to 2002. Source: [Strøm \[2015\]](#)

The presence of women on the boards was very low, starting at about three percent in 1989 and rising to about eight percent in 2002 for the full board. The numbers are even lower for shareholder elected directors. The low numbers are perhaps surprising given the long history of gender equality policy in Norway. Considering the low fraction of female directors before GBL, the Gabrielsen announcement in 2002 of 40% women on boards in PLCs was certainly a “massive exogenous shock” ([Ahern and Dittmar \[2012\]](#) working paper title) to the governance of the Norwegian firms affected by the law.

Can discrimination against women explain why the female representation

was weak prior to the GBL? Altonji and Blank [1999, p. 3168] define discrimination in the labour market as “... a situation in which persons who provide labor market services and who are equally productive in a physical or material sense are treated unequally in a way that is related to observable characteristics such race, gender, or ethnicity”. In the board context, discrimination implies that women are shut out of directorships for reasons of their gender. Were potential female directors held back from director positions in the discrimination sense even though they could provide equally valuable contributions at the board table?

I did a small study on the *persistence* of electing a female directors in Norwegian listed companies prior to the GBL [Strøm, 2015]. My point of departure is that if discrimination is the case, it must be *persistent*. This persistence is *state dependent* in the sense that discrimination in one period necessarily follows discrimination in previous periods. The persistence concept seems to be similar to the path dependence concept in Bertrand et al. [2018].

The idea that discrimination is persistent is implied in labour economic theories of discrimination. The two leading theories of discrimination in economics are the *taste-based* theory [Becker, 1971] and the *statistical* theory [Phelps, 1972, Arrow, 1973]. According to taste-based labour discrimination, the employer does not like having workers of a certain race or gender. Applying this to the selection of directors means that if owners do not like women on the board, none will be elected. This induces persistence in the female representation on the boards of companies.

Statistical discrimination means that an individual is judged not on his or her own merits but, instead, on membership to a group. An



alternative description is discrimination by stereotype. Assume that the stereotype is gender; that the owners perceive men to have, on average, greater ability as board members than women; and that the dispersion of abilities for each gender is very large. If the owners are unable to judge the true ability of individuals, they will choose a man, since owners perceive men to have better qualifications, on average, than women. [Lundberg and Startz \[1998\]](#) develop a dynamic self-fulfilling prophesy [[Merton, 1948](#)] version of the theory: Women excluded from board membership may internalise the view that they are inferior, believing that no effort will suffice to qualify for a board position. Consequently, women will, on average, invest less in education and work experience to qualify for such positions. Instead, they will self-select into professions where they believe they are treated more as equals, primarily in the public sector. The upshot is that the owners' prejudices are confirmed, so that they continue to think that women are simply insufficiently qualified. The owners will continue to elect male members period after period. In consequence, the dynamic statistical theory of discrimination thus predicts that discrimination will be persistent. In the extreme, no woman is elected to a board period after period, resulting in high persistence. Persistence will also be high if the company has a female director continuously for "windows dressing" purposes [?]. On the other hand, if the fraction of women on the board changes from one period to the next, persistence is low. Thus, the degree of serial dependence in gender representation will reveal the degree of discrimination against female directors. Statistical discrimination can explain why we observe such a low fraction of women on the board and concurrently with low discrimination measured as persistence.

I used the gender diversity  $GD$ , defined as the fraction of women on the board, as a measure of diversity. One way to capture persistence is to

let the gender diversity appear on the right-hand side of the regression specification. I further specified the estimating relation for persistence with time-varying control variables and year indicators  $Y_t$  as follows:

$$GD_{i,t} = \alpha + \beta GD_{i,t-1} + \gamma \text{Controls}_{i,t} + \sum_{t=1990}^{t=2002} \theta_t Y_t + c_i + \varepsilon_{i,t} \quad (3.1)$$

for  $t = 1989 \dots 2002$ , where  $GD_{i,t}$  is gender diversity in the board of company  $i$  in year  $t$ ;  $c_i$  represents time-invariant company characteristics, such as its industry affiliation; and  $\varepsilon_{i,t}$  is pure variation, that is, independently and identically distributed idiosyncratic errors. If the persistence parameter  $\beta$  is 1.0, the level of female representation remains the same; if it is higher than 1.0, more women will be on the board in the next period; and if the persistence parameter is less than 1.0, fewer women will be on the board in the next period. The decay in persistence is larger the further removed from 1.0 the persistence parameter is. Thus, if women are discriminated against, I expect a persistence of 1.0. A value well below 1.0 points towards no discrimination. Thus, the temporal dependence will be strong and close to 1.0 if discrimination takes place.

I employ the [Arellano and Bond \[1991\]](#) and [Blundell and Bond \[1998\]](#) system GMM estimation methodology and estimate on all listed and non-financial firms in Norway 1989 to 2002. I find a  $\beta$  in the area 0.25 to 0.35, that is, a low persistence parameter. The persistence in other governance variables, such as the CEO is a member of the board, or the board size, have higher persistence parameter. Also, if we introduce incumbent power variables into the regression, the  $\beta$  coefficient is in the area 0.25 to 0.40 depending upon the specification. Incumbent power variables include *CEO tenure*, *CEO director* in company, and

the board's *tenure power*.

The upshot from low persistence in gender diversity is that discrimination at the board level cannot have taken place in the period immediately preceding the Gabrielsen announcement in February 2002 of a 40% rule. But if the signs of discrimination cannot be found, why are so few women in director seats before the GBL legislation?

### 3.2 A lack of competent women?

If discrimination is not the explanation, why did the boards hold so few female directors? In this section we investigate if the “basic presupposition” that women constitute 50% of the talent pool for board positions is true. One explanation is that women self-select into employment positions that do not lead to board appointments. As we saw in section 2.7, the

Companies objected to the GBL on the grounds that too few women were available for board positions [Storvik and Teigen, 2010]. The government claims the opposite, that is, the companies draw talent from only 50% of the total talent pool. Were companies right after all? I look at these questions in this section, drawing on both employment and education statistics.

The qualifications a director should hold as singled out in academic research and among practitioners is a good starting point. A qualified director should be able to fill some board functions. Adams et al. [2010] see board functions consisting mainly of the hiring, assessment, and firing of the CEO on the one hand and the setting of corporate strategy on the other. To perform these functions, great stress has been put on the director's independence from Fama [1980] and “Cadbury committee”

[1992] onwards. Broadly speaking, the director is independent if he or she has no family relationship to the CEO, or no present or former business relationship to the CEO [Byrd and Hickman, 1992]. Some evidence exists, e.g. Duchin et al. [2010], that board independence is valuable to some companies. Practitioners seem to stress that good directors are owners, leaders with a full budget responsibility, expert knowledge in business areas of interest to the company, and people with good network, for instance, with many board directorships. In either case, a future candidate must build a record as a leader before being considered for a board position at the age of about 45 years. This requires *visibility* as a leader and a *network* of business people.

The question is if women are handicapped from obtaining these qualifications, particularly around the time of GBL? The education statistics in table 3.1 shows the education level of men and women.

**Table 3.1** The percentage of men and women with a college education 2008 to 2016. Source: Statistics Norway

	2008	2009	2010	2011	2012	2013	2014	2015	2016
Men	23.7	23.9	24.0	25.6	26.0	26.2	28.1	28.6	29.1
Women	27.3	27.8	28.4	30.7	31.6	32.3	34.3	35.4	36.3

Women have a higher education level than men in all years we have statistics for, and the gap between men and women is increasing over the years. But higher education level is not a guarantee for qualification as a director. As we will se in this section, most of the female employment is in the public sector. The college education and higher is largely an education for employment in the public sector.

Education does not automatically translate into leadership positions. This is evident for the proportion of male and female leaders. Table 3.2 shows the distribution of male and female leadership positions in both

private and public organisations.

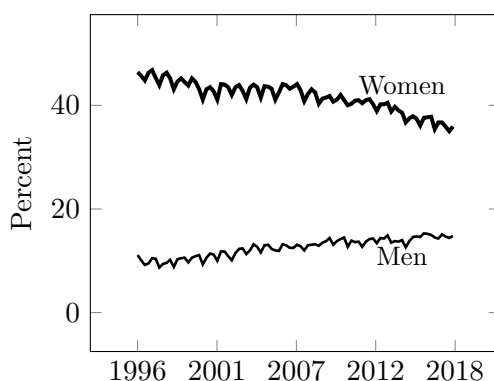
**Table 3.2** The percentage of male and female leaders in all sectors in Norway 2008 to 2016. Source: Statistics Norway

	2008	2009	2010	2011	2012	2013	2014	2015	2016
Men	67.9	66.9	66.1	65.3	64.8	64.3	64.2	65.1	64.7
Women	32.1	33.1	33.9	34.7	35.2	35.7	35.8	34.9	35.3

The table includes private as well as public companies. Public companies are by and large exempted from competition. Roughly two thirds of all leaders are male. The proportion is only slowly adjusting towards a higher female proportion. Thus, despite women’s higher education level overall, the men dominate in the leadership positions. The 50% female talent pool was simply not there. The picture is even more unequal when we account for private and public employment. [Hamre \[2017, p. 15\]](#) reports that in the private sector 70% of all leaders are men. Women are stronger in leadership positions within personnel management. We revert to this in the next chapter [2.2](#), section [2.3](#).

The story is even more aggravating than these general numbers indicate due to the different attachment men and women have to the labour market. The *gender segregated labour market* is a salient characteristic in Norway. A first piece of evidence is the very different pattern of part-time and full-time work between men and women. [Figure 3.2](#) gives an overview of the percentage of part-time work for men and women from 1996 to the present.

The figure clearly shows that women hold part-time positions to a far higher extent than men do. During the years when the GBL law process was under way, the female part-time fraction was more then 40%, falling to somewhat below 40% in recent years, while the extent of part-time work among men is 10% at the start of the period and rising to about



**Figure 3.2:** Part-time work among men and women in Norway. Quarterly data 1996 to 2017. “Part-time” has two categories. The short category has up to 19 hours per week, and the long between 20 and 36 hours per week. Source: Statistics Norway

15% at the end. We also note that these distributions are quite stable over time. Apparently, new work patterns slowly emerge. Furthermore, Statistics Norway reports that most the part-time work is voluntary, only 10% of the part-time female employees want full-time employment, but cannot obtain it. The 40% part-time female workers are hardly available for board positions. In the [OECD \[2017\]](#) (Figure 1.6.D) shows that women in Norway work fewer hours relative to men than women in neighbouring Nordic countries.

I underline that part-time work is hardly conducive to a career as a director. A part-time worker spends per definition less time in a workplace than a full-time employee, and has less opportunity to show leadership visibility and to establish a career valuable network. A part-time worker is less likely to stand in the ranks for leadership positions and is thus, less likely to accumulate valuable experience for a board. [Bertrand et al. \[2018\]](#) find that the GBL reform represents no break with earlier trends in leadership for part-time working women. The fact that women to a far greater extent than men hold part-time employment

cuts into the number of available director candidates. Women do not constitute 50% of the talent pool for directors.

The next piece of evidence comes from the sector distribution of employment for men and women. Figure 3.3 shows how men and women are employed in major sectors of the Norwegian economy starting in 1996 and to the present.

Men and women distribute very differently in sectors. The largest sector for women is public services. In fact, the percentage of women is 47.7% in public services when the series begins, in the first quarter of 1996, and then rises to 53.9% in the last quarter of 2017. In comparison, about 18% to 20% of the men are employed in the public services, and this percentage is fairly stable over the years. For men, public services are the least preferred employment sector, for women the most preferred. If anything, the differences have become stronger during the period we study. Thus, the *gender segregated labour market* is a recognised empirical fact in Norway. The evidence in this section suggests that the labour market is becoming even more segregated.

The public services are mainly situated in education and health services. The overwhelming majority of organisations in the services are owned by either the government or municipalities. The public sector is not exposed to the cold winds of competition that private companies experience. Persons rising to leadership positions in the public sector have, therefore, not acquired the necessary visibility and valuable network for a directorship position in private companies. Again, this implies that the talent pool of female candidates for director positions is less than 50%. Nurses, teachers, and kindergarten employed do not qualify for the director pool in PLC companies in their professional work. In particular, for the period around GBL lawmaking in 2002 to 2006 the

female talent pool was limited.

In figure 3.3 above we study broad sector categories. From Statistics Norway we can also learn that the distribution of male and female employees by organisational type. Table 3.3 gives the percentage of men and women in private companies, which is relevant for the discussion of board positions in PLC companies.

**Table 3.3** The percentage of male and female employed in private companies in Norway 2008 to 2016. Source: Statistics Norway

	2008	2009	2010	2011	2012	2013	2014	2015	2016
Men	63.0	63.0	63.1	63.2	63.5	63.5	63.4	63.4	63.4
Women	37.0	37.0	36.9	36.8	36.5	36.5	36.6	36.6	36.6

Men clearly dominate in private companies. The percentage of women is in fact slowly decreasing during the period. Further evidence of the gender segregated labour market is the distribution of men and women among occupations, based on the ISCO-88 (The International Standard Classification of Occupations). In crafts (plumbers, electricians etc.) more than 90.0% of all employed are men, while women dominate with about 80% in health related occupations, office assistants, and cleaners [Hamre, 2017, p. 14].

The overall labour market for men and women shows two divergent trends. One trend is the slowly closing gap in employment and hours worked. The other trend is the increasing difference in sector employment, with women increasingly concentrating in the public sector.

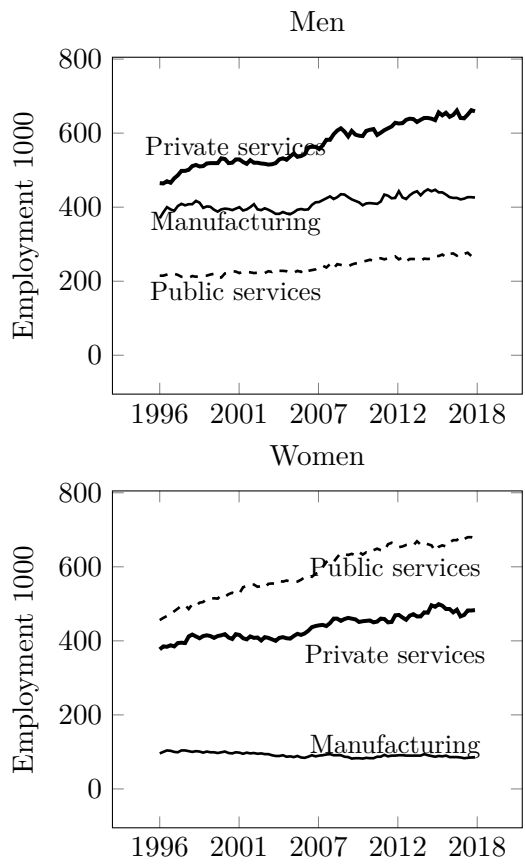


### **3.3 Conclusion**

- We cannot find evidence of direct discrimination of women in the practice of director appointments.
- Women work more part-time than men.
- Women tend to work in public services, men in the private sector.
- Leaders in private companies are more often than not men.

The conclusion is that the GBL reform was a law made in the political sphere, with little or no support from the companies involved. For politicians, this was a cheap reform, appealing to many voters and no budgetary consequences.

But can a reform made with little regard for the opinions of those involved nevertheless have favourable outcomes? We turn to this question next.



**Figure 3.3:** Employment distribution of men and women in Norway. Quarterly data 1996 to 2017. “Manufacturing” contains traditional manufacturing, resource extraction industries, and construction. “Private services” are retail trade, hotel and restaurants, banking and finance, and business services. “Public services” are public administration and defense, education, and health services. Source: Statistics Norway

# 4

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## The withering of the PLC company

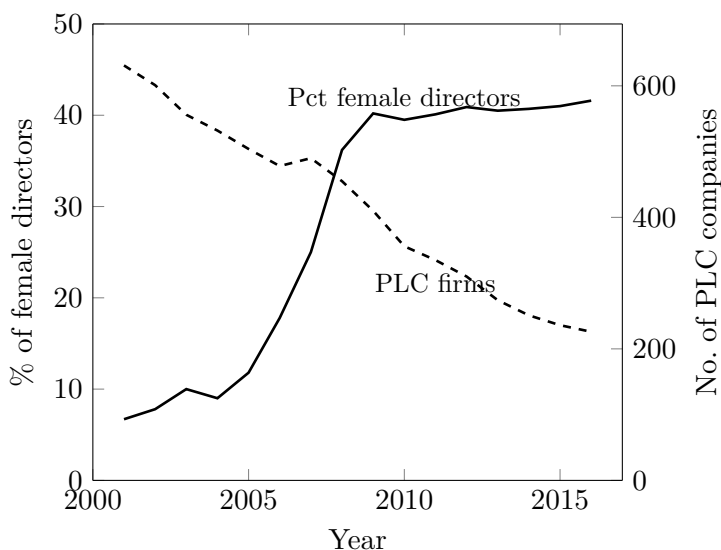
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In this chapter we look at one large unforeseen and unintended consequence of the GBL reform, that is, the near disappearance of the PLC organisational form. However, the withering of the PLC form could be due to other developments in the Norwegian economy, such as the the financial crisis and the collapse in petroleum prices in 2014.

### 4.1 The rise and fall of the PLC company

The reason why the number of female directors in PLCs declines after 2008 seems to be the reduction in the number of PLC companies in the period. Figure 4.1 shows the stock of PLC companies from 2001 to 2016.

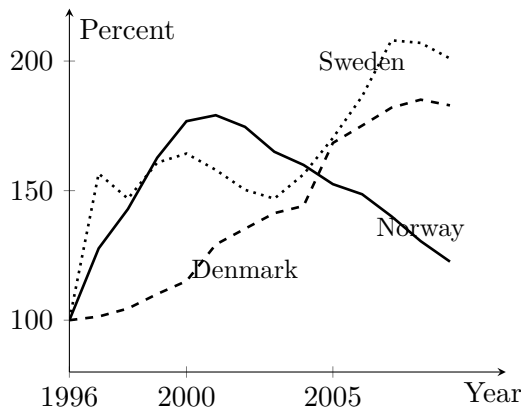
There is a steady decrease in the number of PLC companies in the register since 2001. In the Brønnøysund register, we find that in 2001 a total of 631 firms are in the PLC register. In 2016, only 226 firms are



**Figure 4.1:** The percentage (left ordinate) of female directors and the number (right ordinate) of PLC companies from 2001 to 2016

in the register, a reduction of 64.1% in the fifteen years. As I show in figure 4.3, the number of LTD companies increases in the same period. The increase has little to do with the transformation from PLC to LTD status, as the number of LTD companies is more than 200,000 in 2010. Since only PLC companies are required to abide by the GBL, the LTD organisational form constitutes a safe haven for those PLC companies that do not want to be constrained by the quota law. Companies can avoid the regulation by changing its organisational form. We return to this question at the end of this section.

The Norwegian experience is in sharp contrast to developments in neighbouring Sweden and Denmark, see figure 4.2. Denmark and Sweden have not mandated female representations on company boards. In the figure, all countries share the same starting point of 100.0%.

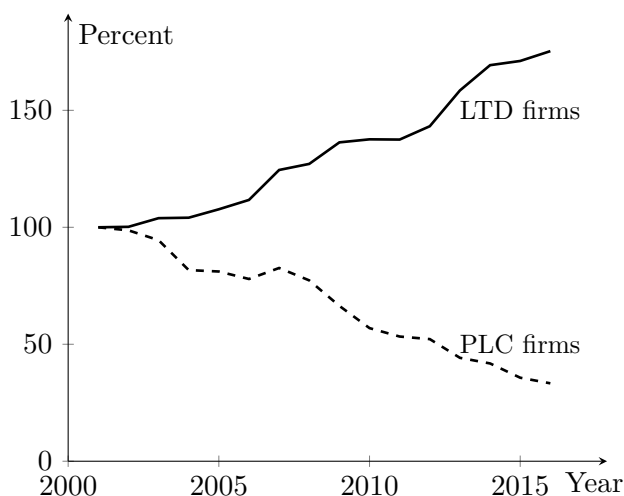


**Figure 4.2:** Percentage of PLC firms 1996 to 2009 relative to 1996 in Denmark, Norway, and Sweden. Source: [Böhren and Staubo \[2014, table 4\]](#)

Figure 4.2 clearly shows the rapid rise in the number of PLC firms in the Norwegian register, and then the falling off starting in 2001. In comparison, Sweden has a more erratic development, with a reduction starting at about the same time as in Norway, but with a subsequent strong increase. Denmark increases the stock of PLC companies steadily. The PLC form was introduced in Norway and Sweden in 1996, but has a longer history in Denmark. The development in Norway is unique.

The development in the PLC is also unique in Norway. Figure 4.3 shows the stock of PLC and LTD firms in Norway, relative to the top year for PLC firms in 2001.

Figure 4.3 shows the contrast between the steady decline of the PLC organisational form, and the steady rise in the number of LTD firms in Norway. The strong growth of the LTD firms is a testimony that weak economic growth is not an explanation for the reduced number of PLC firms. On the contrary, during the period up till 2014, the Norwegian economy experienced a golden age due to rising petroleum prices. The



**Figure 4.3:** PLC and LTD companies in Norway 2001 to 2016. PLCs in 2001: 529, in 2016: 176. LTDs in 2001: 118,533, in 2016: 207,813. Source: Statistics Norway

strong growth in the LTD form is a testimony of the high economic activity in the period.

Is the change in organisational forms important? It is of course important because it negates the intention of the GBL, that is, to bring more women into leadership positions in the largest and most important companies in Norway. Besides this, the exodus to the LTD form has consequences for the corporate governance of Norwegian companies.

In general, the corporate governance requirements are laxer for LTD companies than for PLCs. First of all, this concerns *transparency*. The requirements to disclose detailed information to shareholders and the public is weaker for the LTD companies. The LTD company does not have to follow the International Financial Reporting Standards (IFRS) guidelines, and in particular, does not have to report the compensation paid to top management. An LTD firm avoids the requirement for the board to present the compensation policy to the General Meeting, which

was made part of the company law as from 2007.

Second, in the LTD the CEO can also be a member of the board. The CEO can also be the chair of the board. Neither of these regulations are part of the PLC requirements.

By reducing transparency and allowing duality of leadership positions, the LTD organisational form means that shareholders are potentially less informed than they could have been. The risk of managerial entrenchment, that is, the practice of following managerial priorities rather than the shareholders', is more pressing. Thus, by insisting on one governance improvement, the regulations induce weakening other aspects of corporate governance. [Diamond and Verrecchia \[1991\]](#) show in a theoretical model that the cost of capital should decrease when firms provide better information about their companies.

But the last conclusion rests on the premise that the GBL really was the cause for the decline in PLC registrations in Norway from 2001. Other causes could be at work. Companies go bankrupt, merge or are acquired, or they reorganise for reasons unrelated to governance reforms. [Bøhren and Staubo \[2014\]](#) is the first study of the gender balance law's effect on companies' choice of organisational form, in this case, if the GBL induces an exit from LTD to PLC form.

We review the Bøhren and Stabuo study here. They collect data on PLC firms from 2000 to 2009, that is, from before the first signals that a law might come and to one year after the full implementation in 2008. They exclude firms that go bankrupt or exit due to merger, and also exclude financial firms.

The method is to run logit regressions with the probability of exiting, given a number of firm characteristics. The dependent variable, *Exit*, is

1 if the firm exits in the period. The main explanatory variable is the fraction of female directors *before the GBL*. The hypothesis is that the higher this fraction is, the less likely the firm is to exit after GBL. The hypothesis finds confirmation in the data with a very high significance level. Thus, companies with a low representation of women in boards before the GBL are more likely to exit.

Interestingly, if the firm is listed, it is less likely to exit. The reverse is of course that non-listed PLCs are more likely to exit. This indicates that the advantages of being listed outweigh the disadvantages of the mandated GBL quota. These advantages include the greater liquidity in the shares, the pricing of the firm, and the easier access to funding by equity and loans. Listed firms have more to lose by exiting. This is a confirmation of what we can observe empirically. In the PLC register ten years after the implementation in 2006, hardly any unlisted PLC companies exist.

The fraction of female directors and the listing status are the two main explanatory variables. In addition, the authors find several other effects. One is that small firms are more likely to exit than large firms. This is as expected, since compliance costs are to a great extent fixed and therefore more onerous for smaller firms. The result complements the finding in [Gao et al. \[2009\]](#) of smaller firms having an incentive to stay small to avoid having to comply with SOX regulations. Bøhren and Stabuo find that younger firms and more profitable firms are more likely to exit as well, but family firms are less likely to exit. Taken together, [Bøhren and Staubo \[2014\]](#) uncover reasonable economic explanations for why companies leave the PLC register. The conclusion from the Bøhren and Stabuo investigation is that at least some companies have left the PLC register for reasons associated with the GBL.



Ahern and Dittmar [2012] also investigate how companies can avoid the gender balance law by changing incorporation from PLC into the LTD organisational form, or they can incorporate abroad. They find that both paths were taken by companies. They classify a firm delisting to avoid regulation if the firm delisted by (1) going private or changed country of incorporation, or (2) being acquired by a private or a foreign firm. This allowed companies to avoid GBL, but otherwise carry on as before. They assume that if the firm is acquired by another Norwegian PLC company or goes bankrupt, the motivation is not to avoid the GBL regulations. The development of the 119 PLC companies in 2002 belonging to their sample is then studied. They report that the most common reason for companies delisting was an acquisition by a private or a foreign firm, 25 in total, followed by going private or relocating (13). In all, 49 companies had delisted by 2009.

Ahern and Dittmar run logit regressions using the sample of PLC firms existing in 2002. The dependent is one if delisted for any reason or alternatively, one if the company delisted in order to avoid regulation (reasons (1) and (2) above) in the period 2003 to 2009. The main explanatory variable is the female director fraction in 2002. The logit regressions also contain other explanatory variables, such as board size and board age.

The regressions confirm the hypothesis. In all specifications, the female director fraction is negative and significant. Ahern and Dittmar take this as evidence that the companies that were most affected by the law were the more likely to delist. Furthermore, companies with a younger and less experienced board were more likely to delist. This is reasonable. A company with a young board would have to substitute young and inexperienced board members with even younger and less experienced female directors. Appointing experienced board members is costly and

the experience may not be relevant for the specific governance issues that the company has to deal with. Again, Ahern and Dittmar give reasonable economic explanations for why PLC companies delist.

Eckbo et al. [2016] completely disagree with the Bøhren and Staubo [2014] conclusion on methodological grounds. They claim that Bøhren and Staubo “backfill” the observations on the dependent variable for all years prior to the exit decision. This inflates the statistical significance of the results. In contrast, they present regressions with the binary variable indicating exit only in the final year in the PLC register. The resulting coefficient for female board fraction (specifically, they use the term *shortfall* defined as the distance from the requirement set out in table 2.1 and the actual number of female directors) is not significant. However, their classification of firms into exit/non-exit can induce an underestimation of exits from the PLC register. I think that the Bøhren and Staubo procedure is correct; they classify firms as either eventually exiting firms or not.

Other methodological approaches could be used. Neither Bøhren and Staubo [2014] nor Eckbo et al. [2016] take account of the time dimension in their analyses. A *duration analysis* or survival analysis [Collett, 2003] where the time to exit is of interest, could be an interesting alternative. A duration analysis can potentially give a more detailed and nuanced estimation of the significance of the female director fraction than the simple binary exit/non-exit.

In any case, the figures we have shown of the decline of the PLC companies over the years leading up to the present. Even if Eckbo et al. [2016] are correct, they cannot explain why so few companies enter the PLC register relative to the many leavers. Furthermore, both Bøhren and Staubo and Ahern and Dittmar give good economic explanations

for why companies delist. Corroborating evidence comes from [Gao et al. \[2009\]](#), who find that companies shift organisational form, or adjust their size so as to avoid SOX regulation. The evidence is in favour of some PLC companies leaving the PLC register for reasons related to the GBL.

## **4.2 Developments in the Norwegian economy 2000 to 2015**

In section 4 we have seen how the PLC organisational form withered away after the GBL process began. In this section, I look at developments in the Norwegian economy that could give alternative explanations for this withering.

# 5

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## Better performance with GBL?

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The GBL Promise 2 is that firm performance will improve with an at least 40% female director fraction. Has the promise been fulfilled? A number of studies have investigated the question if the GBL has led to better or worse performance among the PLC companies. At first, this seems to be an ideal testing situation with a regulation imposed exogenously and then consequences follow. This is a “before-and-after” situation, a natural experiment, amenable for analysis by difference-in-difference methods [Lee, 2005] or DID in shorthand. But as we have seen in table 2.2, the situation before and after is not clean. The event window lasts from February 22 2002 to January 1st 2008 in my opinion. Within this time span several dates are candidates for the cutoff year, the event year. Secondly, we have seen a significant drop in PLC companies during the period, giving any study a sample attrition problem and a problem of selection bias. We will see that these problems reappear in all studies that are undertaken so far.

Most studies use the DID methodology. But [Ahern and Dittmar \[2012\]](#) also run an event study of the Gabrielsen announcement in February 2002. We start here. We consider DID studies in section 5.2.

## 5.1 Event study

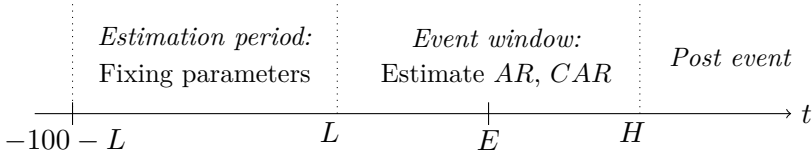
[Ahern and Dittmar \[2012\]](#) study effects of the announcement of quota laws for female representation on company boards. Their point of departure is the observation that

Though an extensive literature exists on the relation between board structure and firm value, the endogenous nature of corporate boards has limited our understanding of even the most basic questions

invoking [Adams et al. \[2010\]](#). Ahern and Dittmar underscore that the Gabrielsen's announcement was unanticipated and that it is unusual to find an unanticipated announcement of such a large change in government policy. Furthermore, the law change was not brought about by firms, thus reverse causality is highly unlikely. In fact, we know from [Teigen \[2012\]](#) that the quota law is an outgrowth of the Norwegian state feminist tradition, that is, the law was due to political pressure channelled through interest group actions and political parties. [Ahern and Dittmar \[2012\]](#) characterise the Norwegian quota law as a *massive exogenous shock* giving them the opportunity to study effects of the shock as a natural experiment, and thus, to uncover exogenous relationships.

Before we state results, it is instructive to lay out the event methodology. The figure 5.1 below is from [Campbell et al. \[1997\]](#) where the event window normally stretches from a few days before the event and some

days after, if data is daily. It is obvious that the methodology is well suited for the Gabrielsen announcement, since this was a great surprise to all involved, and the surprise announcement is identifiable to a single day.



**Figure 5.1:** Steps in an event study.  $t$  is the day relative to the event,  $E$  is the day the event occurs ( $E = 0$ ),  $L$  is the first day before the event included in the analysis, and  $H$  is the last day in the event window.  $R$  is realised return

The objective in an event study is to uncover if the event has caused abnormal returns in the firms involved in the event. We follow the [Campbell et al. \[1997\]](#) presentation of the event study methodology. The daily abnormal stock return,  $e_{it}$  for firm  $i$  on day  $t$  is defined as

$$e_{it} = r_{it} - E(r_{it})$$

where  $E(r_{it})$  is the expected return for stock  $i$  on day  $t$  based on some statistical version of an asset pricing model, such as the single index, or market model. The estimation can be conducted with the market model as:

$$r_{it} = a_i + b_i r_{mt} + e_{it} \quad (5.1)$$

where  $r_{it}$  is the return on stock  $i$  on day  $t$ ,  $r_{mt}$  is the market portfolio of returns on day  $t$ ,  $a_i, b_i$  are the intercept and slope, estimated by OLS regression,  $e_{it}$  is the random error term on day  $t$ . Researchers can invoke other asset pricing models, for instance the [Fama and French](#)

[1992] factor model. The parameters of the market model are usually estimated over a period preceding the event, say from 150 days to 50 days prior to the beginning of the event window  $L$ .

The average residual for day  $t$  is defined by

$$AR_t = \sum_N \frac{e_{it}}{N}$$

where  $N$  is the number of securities in the sample. The cumulative residual for time period  $T$  is defined by

$$CAR_T = \sum_t e_{it}$$

for firm  $i$  during the period between the repurchase date and the subsequent event.

The  $t$ -statistic over the interval day  $t_1$  through day  $t_2$  is defined as

$$t = \frac{CAR_T}{\sum_k s^2(AR_k)} \quad (5.2)$$

where  $s^2(AR_k)$  is the cross-sectional variance excess returns  $n_k$  issues on day  $k$ . The null hypothesis is that the mean cumulative average residual over  $T$  is equal to zero.

The standardised abnormal return is defined as

$$ST(e_{it}) = \frac{e_{it}}{s_i}$$

where  $s_i$  is the estimated residual standard deviation from firm  $i$ 's market model regression. The standardised abnormal return is assumed to be distributed unit-normally.

To investigate if the Gabrielsen announcement caused abnormal returns

on the announcement day, Ahern and Dittmar collect market and accounting data for Norway and comparison countries from CompuStat Global and CRSP. They find a day’s abnormal return by adjusting for industry and then subtract the U.S. average return for the same industry. Thus, the calculation is  $AR_t = r_{Njt} - r_{Ujt}$  with  $N$  for Norway and  $U$  for USA in relevant industries  $j$  for the five days surrounding the announcement, with the event window starting in day  $L = -3$  and ending in day  $H = 2$ . The sum of the five days of abnormal returns is then taken as the measure of the stock impact, that is,  $CAR = \sum_{t=-3}^2 AR_t$ . They test for the significance that  $CAR = 0$  by the  $t$  test in 5.2. The authors require stock price data at the announcement and board data from year-end 2001. This requirement results in a rather small sample of 94 firms. 26 of these have at least one female director in 2001. Abnormal returns are computed for each company, and then averages are made from these raw abnormal returns.

**Table 5.1** Abnormal returns (%) around Gabrielsen’s announcement (Ahern and Dittmar [2012, table 3A]. Three stars indicate a significance level of 1%, two 5%, and one 10%.

	All companies	No female directors	Female directors > 0	Difference
Average	-2.573***	-3.547***	-0.024	-3.523***
Median	-1.804**	-2.521***	-0.928	-1.593*
Observations	94	68	26	

Table 5.1 presents the results from the announcement event study. The first column shows results when all firms enter the regression. It turns out that the overall investor reaction to the news is negative, that is, mandating gender representation is taken to reduce firm value. Results in columns 2 and 3 show that the negative outcome is driven by the firms that have no female directors at year-end 2001. The reaction is



negative for firms with at least one female director too, but this finding is not significant. The stronger reaction in companies with no female directors is statistically significant.

In a second step Ahern and Dittmar use the *CAR* of each individual company as a dependent variable in a regression on a set of variables thought to explain the variation in the *CAR*. In particular, a Norwegian dummy and an interaction term of Norwegian companies and boards with more than zero female directors in 2001, enter the regression. This is called a difference-in-difference term.

To this end, the authors collect data on the names of all publicly listed firms in Norway from 2001 to 2009. The firms' annual reports provide director and CEO information on gender (by first name), age, nationality, and other characteristics. As a secondary source to the annual report the authors use the official Brønnøysund Register. Boardex provides board member data for Scandinavian countries in addition to the Norwegian as well as the United States. The final sample of Norwegian firms has 1,230 firm-year observations from 2001 to 2009 for 248 unique firms.

In the second set of regressions the industry-adjusted abnormal returns for Norway and the U.S. are pooled .

This time the Norwegian dummy is negative. The interaction term between Norwegian dummy and female directors is positive. The dummy is 1 if the company has female directors in 2001. This means that companies without female directors in the same year suffer a 3.5% decline as a result of the Gabrielsen announcement. Ahern and Dittmar reach the conclusion that “... an average Norwegian firm suffered a substantial market value loss at the announcement compared to U.S. firms”.

**Table 5.2** OLS regressions on abnormal announcement returns

	Norwegian and U.S. firms	
Norwegian dummy	-4.347***	-4.146***
Female directors > 0	0.046	
% Female directors		0.594
Norwegian $\times$ Female directors > 0	3.477***	
Norwegian $\times$ % Female directors		14.342*
Adjusted $R^2$	0.025	0.024
Observations	1252	1252

The dependent variable is the industry-adjusted abnormal return. Industry adjustment enters when Norwegian firms' returns are adjusted using the equivalent U.S. industry returns.

The same analysis is performed against Scandinavian companies, and the same pattern of results emerges. The authors try different specifications, but the main results carry through in all specifications. Thus, in Ahern and Dittmar's analysis, the Norwegian companies loose value compared to Scandinavian companies.

In further support of their results Ahern and Dittmar perform a panel data analysis with instruments of the GBL impact on firm value measured as industry adjusted Tobin's  $Q$ . The estimation period spans 2003 to 2009. They take account of endogeneity problems by using the 2002 prequota variation in gender representation as an instrument in fixed effects regressions. In 2002 80 companies have no female director and 42 have at least one. The background characteristics of the two groups of companies are similar, although least female directors appear in the information (IT) industry. They test

$$Q_{it} = \alpha + \beta(\%) \text{ female directors}_{it} + \theta_i + \tau_t + \varepsilon_{it} \quad (5.3)$$

where  $Q_{it}$  is industry-adjusted Tobin's  $Q_{it}$ ,  $i$  indexes the company,  $t$  is

the year,  $\theta_i$  is company fixed effects, for instance industry affiliation,  $\tau_t$  is fixed annual effects from 2003 to 2009, while  $\varepsilon_{it}$  is a randomly distributed residual. The variables  $(\text{Share female directors in 2002}) \times \tau_t$  form the instruments for this regression. Ferreira [2015] calls this instrument choice “ingenious”, since the fraction in 2002 is clearly exogenous to the development of gender quotas. Standard errors are clustered within the firm.

With this setup, Ahern and Dittmar find a value reduction from the GBL to the effect that a 10% increase in the percentage of female directors leads to a decline in Tobin’s  $Q$  of 0.19, compared to the mean of 1.53 across all firms and years. Similar regressions for Scandinavian countries and for the United States give no significant results. They also perform reduced-form regressions with each year interacted with the percentage of female directors in 2002, and find that results persist over time, giving significant results in the the three last years of the estimation period.

In conclusion, Ahern and Dittmar state that “... the gender quota imposed substantial costs on shareholders of Norwegian firms and are consistent with the theory that boards are chosen to increase shareholder wealth”.

The upshot from the Ahern and Dittmar event study is that owners view the infringement upon their decision rights negatively. The implication is that investors mean that they are in the best position to structure the board optimally.

### 5.1.1 Appraisal of the event study

The Ahern and Dittmar study has a number of strong points. First, the Gabrielsen announcement in February 2002 is an event that was completely unforeseen at the moment. No information leakage occurred before the news was published, and the government was not preparing or discussing any reforms of the election process of board members. The setting is ideal for an event study.

Second, Ahern and Dittmar study effects after adjusting for industry impacts and adjusting against the industry returns in the USA. In this way, the Norwegian abnormal returns are benchmarked against an equivalent returns in a stock market that the Norwegian market is closely related to. Industry adjustment is likewise relevant as [Brammer et al. \[2007\]](#) point out that event studies on female appointments show industry specific effects in a study of female appointments to British boards. The highest rates of female directors are associated with retailing, banking, the media and utilities, all sectors associated with close proximity to final consumers, while producer-oriented sectors such as resources, engineering and business services, characterised by isolation from final consumers and predominantly male-dominated workforces, have significantly fewer female directors.

Third, further analyses of the effects of the GBL support the event study findings. Studying the effects of GBL upon Tobin's  $Q$  while using the pre-GBL gender representation as instrument gives a sample that is different, as we will see in section [5.2](#), from the difference-in-difference studies. In effect, Ahern and Dittmar study the firms existing in 2002 and follow their development until 2009. They are then able to follow the firms throughout their history as a PLC company in the sample period.

Fourth, the negative reaction to the Gabrielsen announcement is in contrast to other event studies that take as their event the announcement of a new female director. For instance, [Campbell and Vera \[2010\]](#) perform an event study on Spanish data where the final sample comprises a balanced panel comprising 68 companies and a total of 408 observations. Their period from 1989 to 2001. The total number of appointments over this period was 4050, but only 105 (2.59%) are appointments of women. 47 of the 105 end up in the final sample. The event study gives a *positive* stock price reaction to the news, in contrast to the negative reaction on the Gabrielsen announcement. [Kang et al. \[2010\]](#) obtain a similar result for the Singaporean market.

The weak point in the Ahern and Dittmar analysis is the small number for firms in the event study. In 2001 Oslo Børs lists 215 companies and 205 in 2002. Including only 94 companies in the final analysis could cast doubt about the representativeness of the event study. On the other hand, the findings are statistically robust. A renewed check on the data could be welcome. Another concern is methodological. Ahern and Dittmar do not perform an estimation of a representative model of asset returns in the estimation period, but simply add the returns over five days surrounding the event date and averaging. This is a very simple event study, if we follow [\[Campbell et al., 1997\]](#). We should specify a statistical asset pricing model, estimate parameters in a pre-event period, and then calculate the abnormal return in the event period to see if the *ARs* deviate from zero.

### 5.1.2 Critics of the event study

Other doubts could be cast on the Ahern and Dittmar event study. The event may not be as unique as they claim, or the control group is not

relevant. [Eckbo et al. \[2016\]](#) do just this. Let us look closer at their arguments and findings.

The Eckbo et al. investigation differs from Ahern And Dittmar in three important ways. First, they include more events than table 2.2 contains. The Gabrielsen announcement is the fifth event in their setup. The paper identifies 11 events from August 12, 1999 to December 9, 2005. Second, the control group is not US companies in the same industry, but foreign companies listed on the Oslo Stock Exchange. These foreign companies do not have to comply with Norwegian governance regulations. The third difference lies in the choice of methodology. Eckbo et al. basically run regressions with indicator variables for each event they identify, controlling for market movements. The authors use an event window of  $(L = -1, H = 0)$ , that is, the event day at day zero and the previous day. Specifically, their version of the market model is

$$r_{k,t}^e = \alpha_k + AR_k d_{k,t} + \beta_{k1} W_t^e + \beta_{k2} W_{t-1}^e + \varepsilon_{k,t}, \quad t = -251, \dots, 0 \quad (5.4)$$

where  $r_{k,t}^e$  is the daily, equal-weighted portfolio return in excess of the one-day Norwegian interbank offer rate from the Norwegian Central Bank,  $AR_k$  is the abnormal return defined as the daily return adjusted for the the average daily return over the estimation window,  $d_{k,t}$  is the indicator variable being 1 if the event occurs and zero otherwise, and  $(W_t^e)$  is the market portfolio defined as the world stock index MSCI. Eckbo et al. also run a regression without the market portfolio, and one where Fama-French factor model with the factors from [Fama and French \[1992\]](#) and [Carhart \[1997\]](#).

Eckbo et al. find a negative and significant abnormal return for domestic firms for the Gabrielsen announcement event. However, the difference

to foreign firms in Oslo is not significant. The second finding is that two later events give significant *positive* results for domestic firms, but the difference to foreign firms is again not significant. Eckbo et al. take this as evidence that GBL had no value impact.

### 5.1.3 Assessment

Do foreign firms listed on the Oslo Stock Exchange constitute a good control group, and can we explain results after the Gabrielsen announcement? A control group should be independent from the group given treatment. In this case, both domestic and foreign firms receive attention from the same set of analysts, and they react to the same set of fundamental influences. Since the GBL was a regulatory innovation, traders were likely to assume that the consequences were the same for both domestic and foreign firms. In my opinion, Eckbo et al. have not found an independent control group for their event study.

Eckbo et al. do not study only one event, but eleven. The underlying assumption is that the events are independent. This cannot be the case. I agree with Ahern and Dittmar that the pivotal event is the Gabrielsen announcement. The events following the Gabrielsen announcement are reactions to this first event and the ensuing events. For instance, the proposition to enact the 40% quota on June 13, 2003 (see table 2.2) is a follow-up of the Gabrielsen announcement. The two events are not independent. In the later event investors update their beliefs about the likelihood that the GBL will be implemented and when. In order to study the later effects, one should use a Bayesian framework [Gelman et al., 2013] for estimation.

Ahern and Dittmar take the average of abnormal returns over the five days surrounding the announcement, while Eckbo, Nygaard, and

Thorburn (Eckbo et al.) only consider the event day. Furthermore, Ahern and Dittmar use the equivalent U.S. industry stock return as the control group. Eckbo et al. compare to the stock return for foreign firms listed in Norway. This means that a direct comparison is not possible.

## 5.2 Difference-in-difference investigations

In this section we review attempts to measure GBL effects with the difference-in-difference (DID) methodology. The GBL seems to be an ideal testing ground for DID, since it is a natural experiment with a period before the reform and a period after when consequences unfold. Researchers use this feature, and also include a control group of firms in e.g. other Nordic countries [Matsa and Miller, 2013] or Norwegian LTD companies [Dale-Olsen et al., 2013]. It turns out that researchers meet a number of challenges when performing a DID investigation of GBL consequences.

In the terminology of a natural experiment companies that are subject to some reform are often called the *treatment group* and companies not receiving the treatment are named the *untreated group*. We will often also use the term “control group” for the untreated. Furthermore, we employ the terminology from the event study to discuss choices made in the DID investigations. Thus, in a natural experiment the researcher will define an event  $E$  around which outcomes are studied. The event window starts with  $L$  and ends with  $H$ . The period after  $H$  is then compared to the period before  $L$ . The consequences of the reform are compared to the state before the reform to discover differences. The choice of the event  $E$  and the event window of pre-reform before  $L$  and post-reform after  $H$  is not straightforward, and choices can influence



the results from the DID analysis.

Let us briefly review the DID methodology. The ideal estimation workhorse is the (DID) for panel data estimation [Meyer, 1995, Lee, 2005, Roberts and Whited, 2013]. Here, I assume two periods for expositional simplicity, one before the law changes and one after, and two groups of firms, one treated and one untreated. We also assume a clearly defined event  $E = L = H$ . The treated firms are the PLCs, that is, those coming under the law. A stripped-down version of the DID model from Roberts and Whited [2013] reads as follows:

$$y = \beta_0 + \beta_1 d \times p + \beta_2 d + \beta_3 p + u \quad (5.5)$$

Here,  $d$  is a permanent difference between the treatment and the control group being 1 if the company is in the treatment group of PLC companies.  $p$  is a post-treatment indicator being 1 if the period is after the event  $E$ .  $u$  is the unexplained residual. The interaction between these two variables gives us the DID coefficient  $\beta_1$  of interest. Other explanatory variables  $X_{it}$  are often added to the relationship.

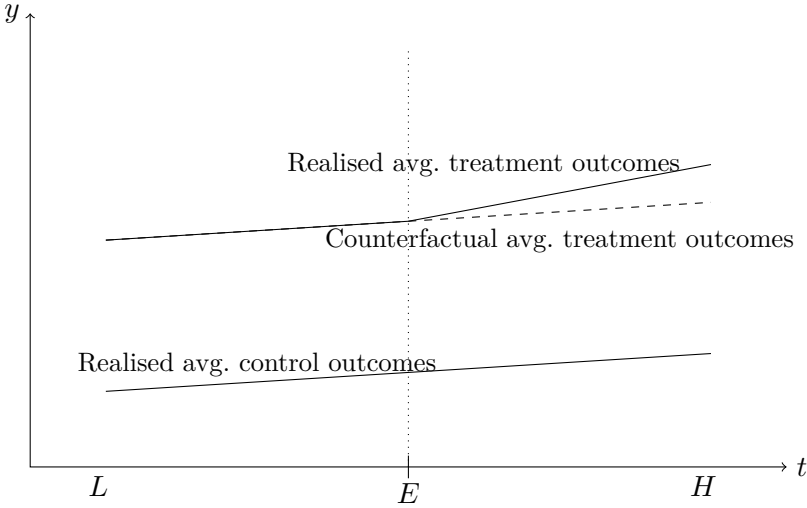
Table 5.3 shows why we need to control for both time and for other firms in order to identify the DID coefficient  $\beta_1$ .

**Table 5.3** Mean estimates of the DID regression conditioned on time of treatment and control group model

Group	Post-treatment	Pre-treatment	Difference
Treatment	$\beta_0 + \beta_1 + \beta_2 + \beta_3$	$\beta_0 + \beta_2$	$\beta_1 + \beta_3$
Control	$\beta_0 + \beta_3$	$\beta_0$	$\beta_3$
Difference	$\beta_0 + \beta_2$	$\beta_2$	$\beta_1$

If we only control for the time in treatment before and after the event, we can recover  $\beta_1$  only if  $\beta_2 = 0$ . If we only use the control group in the post-

treatment period, then we can only identify  $\beta_1$  if  $\beta_3 = 0$ . An implication of this insight is that the DID estimator gives a valid estimate if the treatment and control groups have a common trend in the outcome variable and if the difference between groups is permanent. Figure 5.2 gives a simple illustration of the *parallel trend assumption*.



**Figure 5.2:** The parallel trend assumption

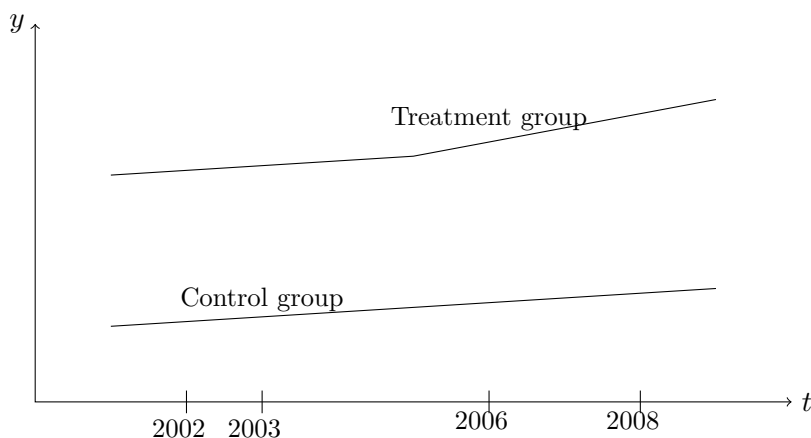
Five different challenges are easily identified for performing a DID for the gender quota reform, see also section 5.3. First, the definition of the pivotal event and the length of implementation are not clear-cut. Table 2.2 contains seven events, Eckbo et al. list eleven events before the implementation from January 1st, 2006. The choice of the event can influence the final result. Furthermore, the full event window (the  $L$  to  $H$  in the event study) is neither clear. For instance, fixing the date at June 2003, when the GBL proposition was first made, will induce researchers to compare with firms in 2001 or 2002 as the before state, and with years after 2003 as the after state. But if the event is set at

January 2006, the before state will be the years preceding 2006, the after state the years after 2006. Results from two such definitions are likely to bring about different results. Thus, the first challenge is a *time inconsistency* problem, when different researchers use different definitions of event and the length of the event window.

Second, [Bøhren and Staubo \[2014\]](#) have shown that a serious attrition of firms took place from the PLC organisational form to the LTD, resulting in a selection bias in the remaining PLCs, but also among the swelling ranks of LTD firms. This challenge interacts with the time inconsistency challenge, because choosing event and event window will influence the choice of firms under study. A DID will necessarily compare company outcomes at  $H$  with outcomes at  $L$ . But Bøhren and Staubo show that good economic explanations induce firms to leave the PLC register. The upshot is that the remaining companies in the register are not random. The second challenge is thus one of *survivorship bias*. In general, the later  $H$  is set, the more biased the sample will be.

Third, the challenge is to choose the control group of untreated firms. [Dale-Olsen et al. \[2013\]](#) use the limited liability (LTD) firms as the control. But LTD firms are in general smaller and have a more concentrated ownership structure than PLC firms on average. [Matsa and Miller \[2013\]](#) in addition use listed firms in neighbouring countries. Again, the choice of control group is likely to have an impact upon the results of analysis.

The fourth challenge is the existence of many *confounding effects*. Where do we put the event of a regulatory change, and what years qualify for the pre- and post-reform years? In figure [5.3](#) we illustrate the difficulty in performing a DID analysis of the quota change since the implementation is so drawn-out. In the implementation period the



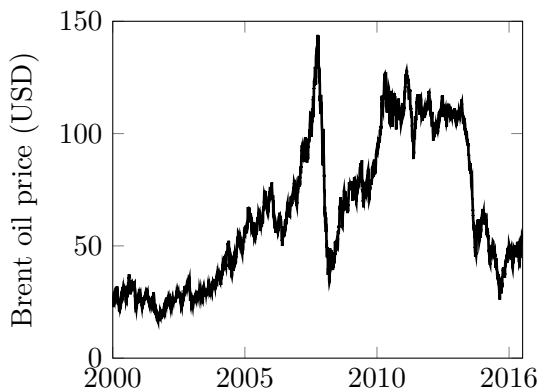
**Figure 5.3:** Confounding effects can disturb the relationship between treatment and control groups when the event window is long

underlying economic reality changes giving a number of confounding effects. We cannot cover all regulatory changes and other changes in any detail here. The transition to IFRS (International Financial Reporting Standards) accounting from Norwegian Generally Accepted Accounting Principles (NGAAP) [Gjerde et al., 2008]. All listed firms have to follow IFRS, but non-listed PLC and LTD companies are free to choose either NGAAP or IFRS. Gjerde et al. calculate the value implication of a transition to be around 4 percent improvement over NGAAP of median net income. From January 1st, 2007, a change in the company law mandating shareholders' say on pay at the General Meeting becomes effective. The same law brings about a tightening of board conduct in that the CEO can no longer be a member of the board. The Norwegian code of good corporate governance (NUES) is published on the 28th November, 2006 [Strøm, 2008]. The value implication of each reform, or the reforms put together, is not clear. All these concurrent changes in the regulatory regime means that is difficult to single out the contribution

that the GBL makes.

The fifth challenge is that the assumption of parallel trends for the treatment and the control group is difficult to uphold. If so, we can imagine a kink in either treatment or control group on the outcome variable, as we have illustrated for the treatment group in figure 5.3. It can be argued that the population composition of the PLC companies changed in the implementation period for two reasons. The first we have encountered already, the insight from Bøhren and Staubo [2014] that there is a serious attrition of companies from the PLC register, implying that the register after a few years holds a higher proportion of larger companies. When the underlying distribution of companies changes, it must be difficult to compare firms across sub-periods.

The second reason is that exogenous macroeconomic conditions changed considerably during the implementation years. The change is likely to have affected PLC and LTD firms differently. An illustration is the important change in the oil price, see figure 5.4.



**Figure 5.4:** Daily USD spot Brent oil price from January 4th, 2000 to December 30, 2016. Source: U.S. Energy Information Administration

The oil price increases significantly in the period when the GBL is being

implemented. The data from the U.S. Energy Information Administration on the reference price for Norwegian petroleum production, the Brent oil, stood at USD 58.5 in the first day of trading in 2007 and at USD 93.7 on its last day. The year 2007 is in the middle of a runup in petroleum prices reaching a maximum in 2008. The uptick in prices for petroleum stimulated a higher activity level in oil companies and offshore companies delivering services and products to the exploration and extraction of petroleum resources. These are capital intensive businesses. The PLC companies are generally larger than the LTD companies. For instance, in 2008 the percentage of firms with more than 100 employees was 1.6 for LTD firms and 15.6 for PLC firms out of all registered LTD and PLC firms (source: Statistics Norway). Such a runup in sales prices will bring large profitability gains in the petroleum related sectors. This will percolate into the wider economy and boost profitability in other firms, for instance the financial companies. It is reasonable to expect that the larger firms gained relatively more from the the rise in oil prices. Therefore, the assumption of parallel trends for treatment and controls groups can be difficult to uphold.

The conclusion to this discussion is that it is very difficult to conduct a proper DID study of the GBL. It is difficult to control for attrition, confounding effects, and different trends when the implementation stretches this many years.

We review the contributions of [Matsa and Miller \[2013\]](#) and [Dale-Olsen et al. \[2013\]](#) in the remainder of this section. The authors study various outcomes, but we concentrate on the analysis of firm financial performance.

### 5.2.1 A DID analysis with LTD companies as control group

In a DID analysis [Dale-Olsen et al. \[2013\]](#) find that “... the short-run impact of the reform on economic firm performance is negligible”. In order to evaluate this conclusion, we must look closely at the researchers’ choice of event and event window, the choice of control group, and other data definition issues.

We write their basic regression specification in the same manner as in (5.5) as follows:

$$ROA_{it} = \beta_1 POST_t \times PLC_i + \beta_2 POST_t + \beta_3 PLC_i + \alpha_1 X_{it} + \varepsilon_{it} \quad (5.6)$$

$ROA_{it}$  is the return on asset of company  $i$  in year  $t$  defined as the company’s net revenue including financial revenues divided by its total assets. This measure is close to the [Matsa and Miller \[2013\]](#) definition of firm performance, thus allowing a comparison of results.  $POST_t$  is 1 if the year is 2007 and zero if it is 2003.  $PLC_i$  takes the value of 1 if it is a PLC company and zero if it is an LTD company. The interaction between  $POST_t$  and  $PLC_i$  gives the DID coefficient  $\beta_1$ .  $X_{it}$  is a vector of control variables.

They find one significant and positive effect of the GBL ( $\beta_1$  in (5.6)), but otherwise no significant effects in eight different specifications. As robustness tests they investigate the effects upon other performance measures, such as operating costs. Again the tests yield no significant effects. In robustness regressions they also utilise companies that have entered or left the registry. Results show no significant changes due to GBL.

Let us look closer at how the researchers arrive at their results. Dale-Olsen et al. use only the year 2003 and the year 2007 in their DID

analysis, although they collect data from 2002 to 2009. This means that in their analysis  $L = 2003$ ,  $E = 2006$ ,  $H = 2007$ . The data contains all PLCs and LTDs with at least one employee and with at the minimum three board members. They require that the analysis is carried out on identical firms. This means that PLC companies need to be active in 2003 and also in 2007 to qualify for data inclusion. In effect, the surviving PLC companies in 2007 define the sample selection. Furthermore, Dale-Olsen et al. exclude financial firms with the justification that as from November 1st 2007 firms involved in security trading no longer had to register as a PLC company. The final sample holds 128 PLC and 36,924 LTD companies. Central to their choice of 2003 and 2007 is that 2003 is a year when the effects of the GBL reform has not started to appear, and that 2008 and 2009 are unsuitable due to the atypical financial crisis. In later regressions they also utilise companies that have entered or left the registry. Results show no significant changes due to GBL.

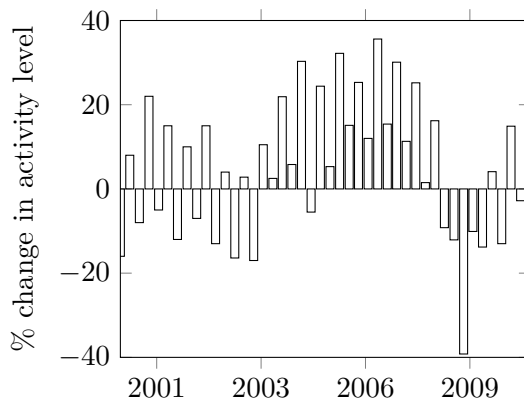
However, the choice of event window brings problems to the analysis. First is the problem of sample attrition. Figure 4.1 shows that the attrition of PLC companies had advanced considerably by 2007, a 19.5% reduction from the highest level in 2001 when we count all PLC companies. Given the results in Bøhren and Staubo [2014] this attrition is not randomly distributed in the PLC population, but varies systematically with e.g. firm size. Therefore, it is quite likely that sample attrition changes the composition of the PLC companies population from 2003 to 2007. The surviving companies are likely to be less affected by the GBL than the exiting companies. Negative effects upon performance may have disappeared with the exit of PLC companies.

A further problem with the period 2003 to 2007 appears with regard to the parallel trends assumption. Dale-Olsen et al. do not exclude



companies in the petroleum business as do Matsa and Miller, see section 5.2.2. This could influence the profitability measures in 2007, since firms in the petroleum sectors tend to be listed and among the largest companies in Norway. The composition of the population of companies in the PLC and the LTD categories are very different, and probably became even more so in the 2003 to 2007 period. Dale-Olsen et al. present a graph of *ROA* where indeed, the average *ROA* in PLC companies improves considerably compared to LTD companies in 2007. The improvement could be a result from the rise in petroleum prices. This means that the parallel trends assumption is difficult to uphold, and that the performance of PLC companies will appear better in comparison with LTD companies than they would otherwise do.

Further evidence that that the Dale-Olsen et al. choice of 2003 and 2007 is problematic is that macroeconomic conditions are very different, see figure 5.5 showing the change in the general activity level in the first quarter 2000 to the last quarter 2010 period.



**Figure 5.5:** Percentage quarterly change in activity level in Norwegian manufacturing and extractive industries from the first quarter 2000 to last quarter 2010. Source: Statistics Norway

Figure 5.5 clearly shows that the change in activity level was at its lowest in 2003 and at its highest in 2007. Thus, the choice of years could be important in explaining their result of no significant impact of the GBL reform.

A last point is the choice of LTD companies as a control group. If the composition of PLC and LTD are very different, which is likely, they are not comparing outcomes in fairly similar populations where one population is subject to a reform, the other is not. A simple adjustment to *ROA* for industry in the manner of Ahern and Dittmar [2012] and Matsa and Miller [2013] could ameliorate this problem. Since Dale-Olsen et al. do not perform this adjustment, a reader is uncertain as to the fairness of the comparison of PLC and LTD companies.

The Dale-Olsen et al. [2013] study shows some of the difficulties that appear in a DID analysis. In this case, the difficulties are exacerbated by the long gestation period of the reform, from the first promise and the first enactment until the last and final reform implementation.

### 5.2.2 Effects on corporate decision-making

The main objective in the Matsa and Miller [2013] study is to investigate if the greater fraction of women on the board brings about a change in the leadership style. Consequently, they study effects of GBL upon the company's personnel policies as well upon profitability. From the finding that companies tend to keep employees longer after the GBL, they infer that the GBL brought about a new management style, since "... labor hoarding may be part of a distinctive female leadership style". Here, we lay out their analysis of profitability after the GBL came into effect.

We have seen above that the choice of event and event window can potentially influence the findings. Consequently, we take some care in studying how the data sample is constructed. Matsa and Miller put the event year at 2006, when all firms are required to have at least 40% of each gender on the board, although they have a grace period of two years to comply. Data collection starts with 2003 and ends in 2009. Thus, the analysis is based on  $L = 2003, E = 2006, H = 2009$ . Matsa and Miller first limit the analysis to listed companies, that is, they exclude PLC firms that are not listed. Next, Matsa and Miller exclude financial firms and firms in the petroleum industry. This limits the sample to 159 listed companies. Missing observations on governance and accounting variables further limit the sample size to 104. In view of the rapid uptick in petroleum prices in the period 2003 to 2008, the exclusion of petroleum firms is apparently a wise decision.

When it comes to the control group, Matsa and Miller estimate with matched samples of LTD firms in Norway and public and private firms in other Nordic countries as the untreated cases. The selection of matching LTD and Nordic firms is done by finding five firms that correspond to the listed Norwegian firms in the sample as closely as possible, based on industry, assets, employees, and operating profits in 2006. They use the matching procedure by [Abadie et al. \[2004\]](#). Although a perfect match is hardly attainable, the matching appears to be an improvement on the procedure followed in [Dale-Olsen et al. \[2013\]](#).

Matsa and Miller use difference-in-difference methodology to uncover effects from the GBL. They study the effects upon profitability by running three regressions with an increasingly demanding control group. The first regression has the following form:

$$Y_{ijt} = \beta_1 Listed_j \times Post2006_t + \lambda_i Year_t + \alpha_j + \tau_t + \zeta_{ijt} \quad (5.7)$$

The first specification simply compares Norwegian listed firms to unlisted before and after the GBL. The subscript in  $Y_{ijt}$  is company  $i$  in industry  $j$  in year  $t$ . In the second specification, Matsa and Miller run the regression

$$Y_{ijt} = \beta_2 \text{Norway}_j \times \text{Post2006}_t + \lambda_i \text{Year}_t + \alpha_j + \tau_t + \eta_{ijt} \quad (5.8)$$

This specification compares the Norwegian listed companies  $\text{Norway}_j$  to listed companies in Denmark, Finland, and Sweden. The third specification combines (5.7) and (5.8) and arrive at a DIDID relationship:

$$\begin{aligned} Y_{ijt} = & \beta_3 \text{Norway}_j \times \text{Listed}_j \times \text{Post2006}_t \\ & + \gamma_3 \text{Norway}_j \times \text{Post2006}_t + \delta_3 \text{Listed}_j \times \text{Post2006}_t \\ & + \lambda_i \text{Year}_t + \alpha_j + \tau_t + \phi_{ijt} \end{aligned} \quad (5.9)$$

In each regression, the dependent variable  $Y_{ijt}$  is Operating profit on Assets, that is, an accounting measure. The accounting measure is necessary in order to compare listed PLC companies to private LTD companies. In table 5.4 we report the results for the various betas from relations (5.7) to (5.9).

**Table 5.4** Changes in operating profits/assets 2003-2009

Regression	Interaction	Coefficient	$N$	$R^2$
(5.7)	$\text{Listed}_j \times \text{Post2006}_t$	-0.027**	3,116	0.05
(5.8)	$\text{Norway}_j \times \text{Post2006}_t$	-0.034**	3,460	0.10
(5.9)	$\text{Norway}_j \times \text{Listed}_j \times \text{Post2006}_t$	-0.040**	8,901	0.05

Regressions contain control variables specified as board size and the average number of other board seats.

In every specification the companies affected by the law have a negative sign. Thus, the GBL did lead to lower profitability in the Matsa and

Miller regressions. The listed companies experience lower profitability than unlisted, and the Norwegian listed lower profitability than listed Nordic. When the two control groups are in the same regression in the third line, the negative result still prevails. Furthermore, the coefficient values are fairly close, indicating a stability in the result independent of regression specification.

Matsa and Miller provide a number of robustness checks. It turns out that the results in table 5.4 are unperturbed. Running regressions with and without controls does not matter, neither has a sample consisting of all firms instead of the matched in the untreated group any impact. The findings appear to be robust. A strong side of the analysis is the fact that they test against two definitions of the untreated companies, and then merge the two analysis.

They report several robustness checks. One noteworthy test is based on the *distance from compliance* with the GBL. The distance is specified in two ways, either the company has no women on the board in 2006, or the company has some women but not enough on the board in 2006. These variables are interacted with year indicator for after 2006 or not and also for listed and the Norway indicator. Thus, Matsa and Miller achieve the DIDID specification as before. It turns out that those firms that are furthest from compliance are the firms with the strongest employment effects. This result is similar to what Ahern and Dittmar find.

Yet their choice of event and event window is debatable. In 2003 the law with a self-destruct clause came into being, that is, Matsa and Miller do not include observations before the first law or before the Gabrielsen announcement. Furthermore, extending the data series to 2009 only means that only one year of data after the final date is in

their sample. It is possible that the financial crisis of 2008 and 2009 and the lower activity level may have affected the PLC companies more than control groups. To check if the developments in the period 2003 to 2006 is different from pre-GBL developments, Matsa and Miller extend their data analysis to 1999 to 2002. Results from the triple DIDID methodology show no indication of differential effects on Operating profit on Assets and other variables in the period preceding the quota. They conclude that the difference observed in table 5.4 really is due to the GBL reform.

However, the Matsa and Miller study does not avoid the problems created by the long implementation period. We discussed this in greater length in sections 5.2 and 5.2.1, and only repeat the main problems. The long period gives problems with sample attrition, confounding events, and the non-existence of parallel trends.

Matsa and Miller propose that a female leadership style can explain the phenomena in the Norwegian case. Building upon Adams and Funk [2012], who observe from Swedish data that “Female directors care less about self-enhancement values (achievement and power) and more about self-transcendent values (universalism and benevolence). Women board members are also more independent-minded, valuing self-direction and stimulation more than men and tradition and conformity less.” Matsa and Miller conclude that “These differences in male and female directors’ values and preferences may explain the quota’s effect on firms’ outcomes”, and that “The long-term effects of greater gender diversity in corporate leadership present an important area for future research.”

### 5.3 Looking back at GBL studies

[Ferreira \[2015\]](#) discusses diversity in general, and notes difficulties in using the Norwegian background. Ferreira points to five problems that may serve as a checklist for the literature that has emerged. First is the timing problem. The exact date for the natural experiment is not well defined. *Ex post* a researcher could choose comparison dates that are advantageous for his or her conclusions. There is too much freedom to define the shock. Ahern and Dittmar choose 2003 as their event date. Matsa and Miller choose 2006. [Dale-Olsen et al. \[2013\]](#) use the years 2003 and 2007. [Bertrand et al. \[2018\]](#) include the years from 1998 to 2010 in their analysis of labour market outcomes. [Eckbo et al. \[2016\]](#) investigate the dates set in the Ahern and Dittmar paper and extend the number of events even more. Ferreira does not mention the Gabrielsen interview that is arguably the turning point in the development. Also, if the government's discussion note in 1999 should have any impact, we expect to see a rise in the number and percentage of women on the boards. We do not.

The second problem is the choice of control group. [Ahern and Dittmar \[2012\]](#) use the equivalent U.S. industry as control. [Matsa and Miller \[2013\]](#) use a matched sample of unlisted firms in Norway and listed and unlisted firms elsewhere in Scandinavia. Ferreira maintains that this is not straightforward, because companies choose their organisational form.

The third issue is sample selection. Regardless of how control and treatment groups are defined, firms self-select into both treatment and control groups, plausibly to avoid treatment. [Bøhren and Staubo \[2014\]](#) show that at least some companies changed organisational form in

order to avoid regulation. I find this point one of the most important misgivings for studying the GBL impact. The sample of PLCs entering the sample in early 2000s is different from the sample in 2006 and 2008. This is an example of survivorship bias, that is, the problem of comparing the surviving firms before and after the reform that is implicit in all regression and DID analyses.

Fourth, a multitude of confounding effects happen simultaneously. There are other governance-related reforms contemporaneous to the introduction of gender quotas. Ferreira views this as especially problematic because the potential “event window” (2002-2008) is so wide. For example, the Norwegian Code of Practice for Corporate Governance was implemented in fiscal year 2005 (with some small changes in 2006). Norway also adopted IFRS accounting rules in 2005. Moreover, the IFRS rules are applied to listed PLCs only. Thus, pooling is problematical even among PLCs. How can we be sure that these are not behind the observed changes in performance?

The fifth issue that Ferreira points at is the mechanism that brings about changes in firm performance. We have seen Ahern and Dittmar argue that with new female directors the board becomes younger and less experienced. This means that the effect from gender diversity cannot be disentangled from the effect of a younger and less experienced board. Matsa and Miller put the effects from gender down to a female leadership style. However, in both cases the mechanism that supposedly brings about the effects of the GBL is not studied directly, but the effect is inferred. Ferreira raises a third possibility, that is, the effect that greater board independence can have for firm performance. He mentions [Bøhren and Staubo \[2016\]](#) findings of an increase in independence from 2003 to 2008. In any case, it appears that a difference-in-difference analysis is very difficult to perform for the GBL reform.



## 5.4 Beneficial effects?

In the proposition to the GBL reform two main promises were made. The reform would bring benefits in the form of greater gender equality and improved firm performance. In this chapter we have seen that these two promises have not been fulfilled. The GBL itself now concerns about 500 women, a small number in comparison with the 105,000 female directors in LTD companies. The increase in LTD companies is slow and steady, independent it seems from the long-term data on directorships. Furthermore, the proposition to the law, [Ot.prop. no 97 \[2003\]](#), conjectured that with more female leadership talent, the companies would hire more female CEOs and upper management in general. This has neither happened. Promise 2 of better firm performance is likewise not fulfilled. Both the event and the difference-in-difference studies we review show negative or no improvement. The promise was a positive effect, an improvement in firm performance. In the passing, we have noted the many difficulties that researchers encounter when studying the GBL.

Besides unfulfilled promises the GBL has had unforeseen and unintended consequences. Of paramount importance is the withering of the PLC company as unlisted PLC companies have almost completely left the particular organisational form. The withering has in itself set in train an overall worsening of corporate governance in Norway. The result is less transparency and greater opportunities for the CEO and top management to influence the company in LTD companies compared to PLC companies, and possibly an overextended weight on the board's monitoring of the CEO to the expense of advice for the CEO.

## 5.5 Other consequences of diversity

Most studies of diversity are about the consequences for firm financial performance. Other consequences are of course possible, too.

[Bernile et al. \[2018\]](#) construct a diversity index from six dimensions of diversity at the board level. These are gender, age, ethnicity, educational background, financial expertise, and breadth of board experience. They focus on risk-related outcomes based on economic and social psychology studies that suggest team diversity moderates group decisions.

[Stephen et al. \[2009\]](#) study the effect on the firm's reputation when women enter the board. They find that beneficial effects are strongest in companies close to final customers.

[Bear et al. \[2010\]](#) “abstract = This article explores how the diversity of board resources and the number of women on boards affect firms' corporate social responsibility (CSR) ratings, and how, in turn, CSR influences corporate reputation. In addition, this article examines whether CSR ratings mediate the relationships among board resource diversity, gender composition, and corporate reputation. The OLS regression results using lagged data for independent and control variables were statistically significant for the gender composition hypotheses, but not for the resource diversity based hypotheses. CSR ratings had a positive impact on reputation and mediated the relationship between the number of women on the board and corporate reputation.,”

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## A failed reform: What can we learn?

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The Gender Balance Law (GBL) is on the whole a regulatory failure. Unfulfilled promises and negative unintended consequences characterise the reform. The benefits of the reform are concentrated to an ever-more decreasing group of women, and costs are dispersed among society at large and especially among young, aspiring men and among owners. The special interest nature of this reform is becoming stark. In my opinion, the law should be repealed.

The GBL reform fails on its Promise 1, that is, to contribute to greater gender equality. The 40% rule in PLC companies is attained, but the number of PLC companies is dwindling, so that the number of *female directors* is now about 500. In LTD companies female directors increase both in numbers and percentage of all directors quite independently of the GBL reform. The reform has not set in train a greater number of women in top leadership positions, as was expected. Also, in private companies women tend to prefer a career in support and human

resources departments, not in decision-making line positions. The Norwegian labour market is becoming even more gender segregated, with an increasing share of women in the public sector.

The GBL reform also fails on its Promise 2, that is, to improve firm performance measured as profitability. The studies we have reviewed show either a negative or no impact on firm performance. But studies of the GBL impact is hard to perform, since the reform implementation period is so long, giving rise to sample attrition (companies leaving the PLC register) and confounding effects (other economic influences), and the mechanisms through which the reform is supposed to impact performance are hard to identify.

Besides failing on its own account, the GBL reform has produced negative side effects. The withering of the PLC organisational form for unlisted PLC companies has potentially resulted in lower transparency and more entrenched top management in LTD companies, and an exaggerated emphasis on monitoring to the neglect of advising in PLC boards. These are real costs of the regulation.

What should be done? A wrong answer would be to notice the reform's failure, and then regulate even more in order to correct for the perceived deficiencies. This could take the form of extending the GBL to the private limited LTD companies, or to demand that some quota regulation comes in place to secure more women in CEO positions. Both these proposals have been made. I think the law should be repealed. The fact that the law today applies to about 500 women is reason enough to repeal the law.

We are moving towards a more diverse society by gender, ethnicity and culture. The correct reaction to this development is not to insist on homogeneity, but to learn to live with diversity. This has implications for

how we view the way political decisions are made. In this review we have described the GBL as an outgrowth of the Scandinavian welfare state conception of a state as a welfare-maximising benevolent social planner correcting market failures. But political decisions can be more fruitfully viewed as outcomes of political processes where several interest groups are involved and where each group tries to imprint the legislature with their own interests in mind [Dixit, 1999]. In a diverse society it is likely that more special interest groups will gain a foothold and to demand protection for their interests. With the view of political processes as a contest between different interested parties, it is easier to discover a group's self-interest.

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